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OZTURK, Huseyin
Central Bank of the Republic of Turkey

YASUDA, Yukihiro
Hitotsubashi University

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We Are Alike: Capital Structure of Japanese SMEs Across Prefectures*

Huseyin Ozturk
Central Bank of the Republic of Turkey
Yukihiro Yasuda
Graduate School of Business Administration, Hitotsubashi University

Abstract

We empirically investigate the capital structure of small- and medium-sized enterprises (SMEs) in Japan to identify whether the firm-specific determinants of leverage exhibit locational differences. Examining this theme in the context of Japanese geography is important because the country has considerable difference, especially in terms of its demography, capital intensity, and industrial structure. Akin to previous studies that have examined the impacts of firm-specific determinants on the capital structure of firms between geographies, our results indicate differences between Japanese prefectures. However, when we conduct an in-depth test of prefecture pairs, we interestingly find that the impact of the firm-specific determinants of leverage does not greatly differ between prefecture pairs in terms of both sign and magnitude. We briefly discuss why this might be an important finding for policy-making, given the recent policy responses to the COVID 19 pandemic.

Keywords: capital structure, small- and medium-sized enterprises, geographic features
JEL classification: D25, G31

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1 Introduction

Companies' financial decisions are determined by a management team based on the choices available in financial markets. The choice of capital structure has been examined since the seminal work of Modigliani and Miller (1958), who proved that the firm value is not affected by the firm's capital structure decision. The classical view generally accepts equity and debt as the main complementary source of financing. The choice between equity or debt is complicated, and no clear-cut theory exists to explain the general tendencies.

Despite firm characteristics being key determinants of capital structure, one recent focus has been on the geographic features that might impact leveraging decisions. While the question of why geographic factors might impact financing decisions still lacks clear scholarly answers, some empirical papers have proposed that institutional factors, regulatory differences, and regional disparities might play a role. Cross-country studies–e.g., Rajan and Zingales (1995), Öztekin (2015), Antoniou et al. (2008)–analyse central institutional factors and determine that discrepancies between countries in terms of their capital markets, fiscal systems, investor protection, and economic development have a considerable effect on financing decisions. Antoniou et al. (2008) identify countries as either capital market-oriented or bank-oriented to determine how leveraging decisions were influenced by various institutional contexts.

A recent attempt pertaining to that line of research examines regional differences within a country as the potential drivers of financing decisions (see e.g. Palacín-Sánchez and di Pietro, 2016). This might be important because–notwithstanding a great number of institutional factors that are controlled for in a single-country analysis–some regional factors such as financial development, banking concentration, demographics, and macroeconomic dynamics such as per capita income and output growth, and even local regulatory regimes may differ across regions of a country and thereby impact firms' capital structure decisions differently.

This paper empirically investigates the capital structure of Japanese SMEs by prefecture to identify whether geographic differences exist in firms' capital structures. We also unravel how firm-specific determinants impact capital structure for each prefecture. From an analytical point of view, the analysis of a single country might be more robust, as within-country analysis potentially omits factors that are already controlled for. This is in line with previous studies of Spain (Palacín-Sánchez et al., 2013), for Italy (La Rocca et al., 2010), and a group of advanced countries (de Jong et al., 2008). This paper analysed 19,138 SMEs from 47 Japanese prefectures with a total of 148,038 observations. Defining firm-specific variables, we first estimate a leverage equation for each prefecture. We discuss how the sign and magnitude of the coefficients vary across the country's prefectures and then test whether the coefficients of the prefectures are equal. We run hypothesis testing à la Palacín-Sánchez et al. (2013) and de Jong et al. (2008) among many others, using the estimated models, and reject that coefficients are equal across prefectures.

Previous cross-country or cross-regional studies in this strand of literature solely run hypothesis testing of the equality of coefficients across their smallest geographical units. That approach is insufficient in two respects: it likely overlooks which units are more alike, and it does not reveal similarity in leveraging behaviour between firms in differing locations. To overcome these deficiencies, we created all possible pairs of prefectures in our sample. All possible pairs out of 47 prefectures equals 1,081 pairs. We then test the equality of the coefficients of five firm-specific variables between prefecture pairs as $H_0^n : \beta_n^x = \beta_n^y$ where β_n is the coefficient of firm-specific variables, and x and y represent non-identical prefectures of a given prefecture pair, (x, y). We presume that a high incidence of failure to reject the hypothesis of equality of a coefficient for a specific pair indicates a degree of similarity. Maximum similarity is indicated if testing does not reject equality of all coefficients for a given pair. Complete absence of similarity is indicated if tests reject the equality of all coefficients. This approach is a novel contribution to the literature, as previous studies disregard similitude between geographical units. Moreover, it uncovers regional clusters in borrowing behaviour.

In this paper, "clustering" is used as a term that describes the intensification of those prefectures that are more similar in certain boundaries than the remaining prefectures in terms of the impact of the firm-level determinants of capital structure. Prefectures constitute nodes in networks of prefectural pairs, and connection occurs if we cannot reject the null hypothesis of equality between two nodes for at least one coefficient. Given that connections intensify along certain boundaries, we argue that the degree of clustering increases. Based on hypothesis testing, we calculate the number of connections between pairs from the identical geographical region (within-region) and interpret intensity by comparing it to total connections (sum of within- and outside-region) to check for regional clustering. Whether doing so suggests SMEs in different prefectures are quite similar and regional clusters are formed, what drives that would have important policy implications.

Our results, based on five firm-specific variables of 1,081 pairs and 5,405 F-tests, indicate that the impact of firm-specific variables between prefectures resemble substantially in terms of sign and magnitude. A series of analysis is conducted to investigate whether regional clusters are formed based on prefectural similarity. We basically find that similar pairs are not geographically proximate and the pattern of similarity is dispersed. For instance, the fraction of similar pairs in all pairs of the regions and the country are comparable. When we re-pair prefectures based on geographical regions, and run similar hypothesis tests across the prefectures of each region, our results suggest substantial within-region dissimilarity, as well. It is worth noting, however, the results indicate a few clusters because the impact of firm-level determinants on leverage is not rejected across the prefectures of a few regions. Understanding what drives clustering in these regions, albeit a few, may aid in developing region-specific (if not prefecture-specific) policies.

We also discuss in which direction firm-specific variables impact capital structure by taking the role of maturity of debt in focus. Our findings help to understand patterns in the impact of firm-specific factors on financing decision of firms. We specifically discuss how firm characteristics impact firms' borrowing incentive to borrow, and given that borrowing is feasible and viable, how maturity preference is at play.

Studying Japanese SMEs across prefectures extends the literature in two respects. First, numerous studies research capital structures of Japan's listed firms but disregard SMEs,[1] which comprise almost 99.7% of all companies (see Figures 1 and 2). SMEs employ the majority of labour force in the country (OECD, 2020), and unlike bond issuance and equity raising opportunities of listed firms, they could solely tap bank loans. This renders them quite vulnerable segment of business and understanding financing decision of SMEs should be of importance to policy-makers in regards to smooth functioning of monetary and fiscal policy and many other venues of policy-making. With this in mind, the second contribution relates to Japanese prefectures which display substantial differences that in turn might impact capital structure decisions of SMEs.

The rest of this paper proceeds as follows. Section 2 introduces institutional background and develop hypotheses. Section 3 presents data and methodology. Section 4 discusses the main findings and test results. Based on the findings, certain policy implications around COVID-19 pandemic are discussed in section 5. We conclude in Section 6.

2 Institutional Background, Previous Research and Hypotheses

2.1 Institutional Background

Prefectures bear unequal burdens from the graying of Japan's population. Figure 3 displays the disparity of population across Japan which is partly due to ageing. According to OECD (2020), Japanese non-metropolitan regions have particularly high elderly dependency ratios reaching 62% where the ratios are around 40% in the nearest OECD countries. Despite generous social and financial support for Japanese regions, due partly to ageing-related

[1]To the best of our knowledge, financing decision of Japanese SMEs in a regional context has not been extensively studied, though the firm leverage has been the foci from different angles (see e.g. Tsuruta, 2015, 2017).

problems, regional demographic heterogeneities seem to be an on-going phenomena.

The trend of migration between prefectures in addition to ageing even worsens the heterogeneities across prefectures as metropolitans either get more populated or are slower in population decline. Figure 4 displays the widely dispersed change of the population of prefectures. Stark differences in demographics aside, the prefectures exhibit some other substantial discrepancies that might potentially impact SMEs and their capital structure decisions. Income disparities and differences in the industrial sector complexity of prefectures coupled with diverse remoteness to trade networks, for instance, make studying Japanese SMEs from a regional perspective a worthy effort (see e.g. Chakraborty et al., 2020, for the extensive discussion on regional differences of Japanese prefectures). Though regional disparities persist, the country has been exemplary in reducing differences between regions in terms of GDP per capita over the year, and it is recorded tenth in terms of the lowest regional economic disparities among thirty nations. The top-performing Japanese regions fared better than the OECD median region in 2018 in most well-being indicators among OECD member countries. Despite improvements, the disparities that might impact the financing decision of SMEs still remain.

Next to demographic and socio-economic discrepancies across Japanese prefectures, we document that there are noticeable differences among prefectures in terms of their basic economic indicators and banking structures. It is well known that the development and structure of the banking sector is one of the important institutional factors that affect the capital structure. Table 1 presents several regional indicators of the general economy and banking. First row shows the ratio of bank deposits divided by the gross domestic product, which is an indicator of the banking sector size. Second row shows the branch numbers of banks at each prefecture per 1,000 people, which reflects the degree of development of the regional financial system. The third row shows the number of bank branches across prefectures. The fourth row shows the Herfindahl-Hirschman index of the Japanese loan market created by Uesugi et al. (2020), which measures the market power in the loan market at each prefecture. We note that the important differences in Japan across prefectures/regions in these indicators might be associated with the capital structure of SMEs.

2.2 Previous Research and Hypotheses Development

The choice of capital structure has been studied since the seminal work of Modigliani and Miller (1958), who proved that in perfect financial markets with full access to information, firms are indifferent between capital or debt. The modern financial markets are not so perfect and information asymmetry is an actual issue. Building on Modigliani and Miller (1958), two additional theories propose alternative explanations for firm capital structure in imperfect financial markets. Trade-off theory argues there is an optimum level of debt where profits per marginal unit of debt equal its costs. Above that optimum, adding debt is irrational because agency problems escalate its costs. Pecking-order theory indicates managers' preferences between debt and equity are a hierarchy problem as external funds are degraded because firms shun bearing the cost of asymmetrical information between borrowers and lenders.

The literature shows a strong relationship between firm variables and the choice of capital. The cross-country studies agree on a number of firm-specific covariates that impact the financing decision. The firm size, asset structure, profitability, firm growth, and firm age are found to be associated with the capital structure of firms (Öztekin, 2015; Rajan and Zingales, 1995; Hall et al., 2004).

Larger firms generally enjoy less volatile cash flow, which implies size correlates with ease of borrowing that in return leads to less volatile cash flow. These firms generally disclose more extensive and reliable information, which reduces information asymmetry for lenders. Neither often is the case with SMEs. Thus we expect firm size to correlate positively with larger debt (Barclay et al., 2003; Diamond, 1993). The expected association yet could be negative because SMEs' access to credit were facilitated in Japan by credit guarantees and a number of support packages introduced to SMEs during the sample period.[2] This could

[2]This does not necessarily mean that smaller SMEs borrow larger amounts. By definition, we argue that

partially give incentive for SMEs to borrow larger relative to its size. Therefore a clear expectation for how firm size impacts firm debt is fuzzy.

SMEs with fixed assets are more likely to borrow because they can offer lenders collateral (Barclay et al., 2003; Palacín-Sánchez et al., 2013). We surmise that asset structure is a factor that influences SMEs' borrowing and in turn debt in capital structures.

Firm age influences SMEs' financing decisions. Younger SMEs presumably need external funds because they have fewer retained earnings and less capital. Established SMEs presumably have internal funds and are reluctant to borrow even though their lending terms are more attractive. We conjecture that firm age is negatively associated with debt (Palacín-Sánchez et al., 2013; Palacín-Sánchez and di Pietro, 2016).

Profitability is another key factor of capital structure. Among many channels through which profitability may impact SMEs' borrowing, it is worth noting that more profitable firms arguably generate internal funds and have less need to borrow. Next to that, less-indebted SMEs might reduce taxation incurred by borrowing. We therefore hypothesize that more profitable SMEs would would borrow less (Palacín-Sánchez et al., 2013; Palacín-Sánchez and di Pietro, 2016; Rajan and Zingales, 1995; Barclay et al., 2003).

Rapidly growing SMEs likely tap external funds because their internal sources would not meet funding needs (Palacín-Sánchez and di Pietro, 2016), but lenders might not fund fast-growing SMEs with elevated default risk. However, evidence of that aversion generally instigates firms borrow short term, in replace for long term debt, but total debt tends to grow at high growing SMEs. We expect a positive correlation between growth and borrowing.

Apart from firm-specific factors, we consider that geography may impact the way how these firm-specific factors interact with firms' capital structure. In this study, we hypothesize that the association between firm-specific factors and capital structure differ significantly with firms' locations.

relative to its size (total assets) size might have a negative impact on leverage.

3 Data and Methodology

3.1 Data

To analyse the capital structure of SMEs, we collected balance sheet data of SMEs mainly from Tokyo Shoko Research (TSR), which is a major database in Japan. Our sample period covers the years 2007-2019. The definition of SMEs in Japan differentiates by sectors. Accordingly, firms are defined as SMEs if they employ below 50, 100, 100, and 300 employees or their capital contributions are below 50, 50, 100, and 300 million Yen for retail (including restaurants), service, wholesale and the other sectors, respectively. We collect data for 19,138 SMEs from 47 prefectures with a total 148,038 observations.

Table 2 briefly informs about the sample distribution. The first column of it presents the distribution of our sample across prefectures. The second column displays the number of observations per head for each prefecture to show whether the sample distribution is representative across prefectures. Doing so suggests that the sample distribution is sufficiently representative because the prefectures have in line SME per capita. On average, prefectures have 1.223 SMEs per thousand population. Saitama has the fewest (0.344) and Yamagata the most (2.388). Tokyo and Osaka rank highest in SMEs per thousand population with 2.020 and 1.455, respectively.

Table 3 presents the data, their definition and the hypotheses in terms of the impact of variables on firm leverage. Our dependent variable in the analysis is firm debt level which is represented by $Leverage$. Firm size is defined as the logarithm of the total assets of the firm and represented by $Size$. We do not have specific sign expectation for $Size$. $FixedAsset$ is the ratio of net fixed assets to total assets and is expected to have a positive impact on firm leverage. Firm age represented by Age is the total years of firm operation and is expected to have a negative impact on leverage. $Profit$ is the profitability of firms which is represented by the ratio of operating income to total assets and is expected to have a negative impact on leverage. Firm growth, $Growth$, is the annual change of firm total assets and is expected to have a positive impact on leverage.

3.2 Methodology

The methodology follows (Palacín-Sánchez et al., 2013) who study capital structure in Spanish regions. In a bid to analyse the regional differences in the capital structure of firms, we estimate the following seemingly unrelated regression (SUR) model which estimates leverage equation for an individual SME i for each prefecture j:

$$Leverage_{i,j,t} = \alpha_j + \beta_j X_{i,j,t} + \varepsilon_{i,j,t} \tag{1}$$

where *Leverage* is the dependent variable and X is a vector of firm-specific variables defined in Table 3, β is a vector of coefficients belonging to firm-specific variables and ε is the error term.

As the focal point of analysis in this paper is to hold cross-equation tests belonging to each prefecture, we use cluster-robust covariance estimator, where j, representing prefectures in our data set, defines a cluster. We stack the regressions per 47 prefecture and use the cluster-robust covariance estimator with ordinary least squares. This strategy leaves point estimates unchanged by allowing for cross-equation tests.

Having analysed the determinants of capital structure in Japanese prefectures, next, we explore any potential similitude between prefectures. Ahead of in-depth F-test of coefficient equality, we first test whether coefficients of all prefectures are equal.[3] Tables A3, A4, and A5 summarize the results of these tests belonging to all coefficients, respectively for all debt, long-term debt, and short-term debt. All reject the equality of coefficients for all sort of debt breakdown. This is in line with previous studies for Spain (Palacín-Sánchez et al., 2013), for Italy (La Rocca et al., 2010), and a group of advanced countries (de Jong et al., 2008).

The previous studies in this strand of literature, solely run hypothesis testing of the

[3] The null hypothesis of such testing is as follows: $H_0^n : \beta_n^1 = \beta_n^2 ... \beta_n^{46} = \beta_n^{47}$, where β_n is the coefficient of firm-specific variable n and figures from 1 to 47 represent prefectures.

equality of coefficients across the countries or regions (based on their smallest geographical unit). We consider that such an analysis is incomplete in two respects. First, running a hypothesis testing based on the equality of a coefficients across all the geographical units is likely to miss clustering based on geographies, if any exists. Second, any statistics on the similarity between geographies in terms of leveraging behaviour of their firms is not reached. We try to overcome those caveats of the prior research as follows:

1. We create all possible prefecture pairs which consist of two prefectures out of 47 prefectures.[4]

2. We test the equality of given coefficients between the prefectures of each pair.

3. Based on the test results of pairs, we check if failure of rejection of null hypothesis (indicating similarity) exhibit concentration or dispersion on geographies.

4. We repeat the steps above for all the coefficients.

Tests are the null hypotheses that each of the firm-specific variables is the same between the prefectures of pairs. In our sample, 47 Japanese prefectures constitute 1,081 pairs from all possible combinations of prefectures of which 143 pairs come from the same region, i.e.$\binom{47}{2}$. We test equality of all coefficients for a pair as $H_0^n : \beta_n^x = \beta_n^y$ where β_n is the coefficient of firm-specific variables represented by the vector X in the Equation 1 that is estimated to determine financing decision of firms, and x and y represent two prefectures that are not identical. We specify combination of states by $H_0^1 H_0^2 H_0^3 H_0^4 H_0^5$ that indicates hypothesis testing result for each variable in the equation; i.e. firm size, fixed asset, firm age, profitability, and firm growth rate, respectively. If the hypothesis is rejected the state is represented by "0" and "1", otherwise.[5]

[4]The choice of two prefectures for a pair is driven by the objective to uncover the minimal similarity within the country. Pairs of more than two prefectures would miss similitude within the country to some degree, which is the very much departure point of our analysis.

[5]For instance, the representation of "10101" indicates that the equality of coefficient belonging to firm size β_1 is not rejected, the equality of coefficient belonging to fixed assets β_2 is rejected, the equality of

We argue that a high incidence of failure to reject the null hypothesis of equality of a given coefficient for a prefectural pair indicates the degree of similarity. Consummate similarity would be evident if testing failed to reject the null hypothesis for all coefficients of a given pair. Consummate dissimilarity appears when the null hypothesis for all coefficients is rejected.

4 Empirical Results

4.1 General Tendencies

We start our discussion of the results with prefecture-by-prefecture analysis of firm-specific determinants of leverage. We run regressions as stated in Equation 1 to explain leverage by firm-specific variables. We use total debt, long-term debt and short-term debt as dependent variables, *Leverage*, separately to check for any maturity dependence of our results (see among many others Berglöf and von Thadden, 1994, for why firms borrow at different maturities, and comparison between long- and short-term maturities). Tables 4, 5, and 6 present the regression results in which the dependent variable, *Leverage*, is total debt, long-term debt, and short-term debt, respectively.[6]

We find that the majority of coefficients of size, *Size*, are statistically significant for total debt. We identify 39 statistically significant negative coefficients for *Size*, whereas coefficients are statistically insignificant for eight prefectures and for Japan overall. Our results do not give substantial support to the previous studies for the impact of firm size

coefficient belonging to firm age β_3 is not rejected, the equality of coefficient belonging to profitability β_4 is rejected, and the equality of coefficient belonging to firm growth β_5 can is not rejected, at the 10% significance level.

[6]For some prefectures, there are seemingly outliers for some variables that substantially increased the standard deviation of data (see Table A1). For instance, for Aomori, Shizuoka and Nagano, the standard deviation of leverage variable is noticeably high. We checked the observations that are on the tails whether these are errors in survey data. We observed that these observations are a few, for instance there are 33 firm observations whose leverage is greater than 100, and not assured to be errors. As a robustness check, we dropped these suspects and repeated the analysis with unchanged results. Results are available upon request.

on leverage, for instance they contradict Öztekin (2015) and de Jong et al. (2008), who find positive relation for firm size. Our cross-sectional analysis reveals that long-term debt somewhat drives these results. Excluding results for Japan overall and four prefectures, regressions with long-term debt as their dependent variable exhibit 43 statistically significant negative coefficients. For all 47 prefectures and Japan overall, there are 16 statistically insignificant coefficients for short-term debt. Among statically significant coefficients, 12 are positive and 20 negative. These results imply that *Size* corresponds negatively to long-term debt and positively but weakly for short-term debt.

Credit guarantees and various support packages for SMEs might explain this result. After 2008, Japan broadened and intensified credit guarantees and support packages (Yamori, 2015), which might have encouraged smaller SMEs to "borrow long." This might encourage smaller SMEs to borrow disproportionately more at longer term, relative to their size, that would confirm the negative association between *Leverage* and *Size*. However, as per the short-term debt, the impact of informational asymmetry issue becomes effective, as larger firms have more reliable information which gives further incentive to potential lenders. This lends support for the visible rise in positive coefficients for the equations where short-term debt is used for *Leverage*. Another potential explanation for the negative association between leverage and size is from Rajan and Zingales (1995) who emphasize size may be a proxy for the information favouring preferences for equity relative to debt.

A similar differentiation appears for asset structure. *FixedAsset*, defined as the ratio of net fixed assets to total assets, exhibits 19 positive and statistically significant, five negative and statistically significant, and 24 statistically insignificant coefficients for total debt. When long-term debt constitutes *Leverage*, all coefficients are positive and significant, except for two negative positive and 1 insignificant. When short-term debt is *Leverage*, there are 17 positive and 12 negative statistically significant coefficients and 19 statistically insignificant coefficients. The positive association between asset structure and leverage finds support from the previous studies (see Öztekin, 2015; Antoniou et al., 2008). However, some studies–for instance, Palacín-Sánchez and di Pietro (2016) who find that the association between asset structure and leverage is positive for long-term debt but negative for short-term debt–report similar conflict between debt maturities. These, all in all, confirm our expectations strongly for long-term debt and weakly for short-term debt. Those SMEs with more fixed assets are successful in attracting lenders especially who are eager to "lend long." The SMEs with fewer fixed assets could attract shorter maturities, possibly at relatively higher costs.

Firm age, *Age*, exhibits 32 negative and three positive and significant and 13 insignificant coefficients for total debt. Long-term results similarly yield 35 negative, four positive, and nine insignificant coefficients. The results are considerably different for short-term debt, as we had 11 negative and 12 positive significant and 25 insignificant results for the short-term regressions. We argue that long-term debt drives the expected negative relation between *Age* and *Leverage* when total debt is the dependent variable. For the short-term debt, some prefectures get negative significant coefficients but this is in balance with positive significant coefficients, and for the majority of the prefectures, the coefficients are insignificant.

Coefficients for profitability, $Profit$, largely confirm our expectations and are negative irrespective of debt maturity. Out of 48 coefficients (47 for prefectures, one for Japan overall), 36 are negative and 12 are statistically insignificant for total debt. All statistically significant coefficients are negative. For long-term debt, there are 3 positive and 7 insignificant coefficients, and the remainder is all negative and significant. In a similar fashion, short-term debt exhibits two positive and eight statistically insignificant coefficients whereas all others are negative and significant. This result accords with our hypothesis that profitable firms need less external financing. This finding does not contradict findings for debt maturities and is valid for all sources of external funding.

Growth rate of firms, *Growth*, has 23 statistically significant positive and seven statistically significant coefficients and 18 insignificant coefficients for total debt. Distinguishing long-term and short-term maturities makes the weak relation between *Leverage* and *Growth* starker. In the long-term debt equation, results indicate six statistically significant positive and six statistically significant negative coefficients and 36 that are statically insignificant. Likewise, in the short-term debt equation, *Growth* has five statistically significant positive and five statistically significant negative coefficients and 38 insignificant coefficients. Results generally show that *Growth* does not drive *Leverage*, although total debt exhibits numerous positive and significant coefficients. Two competing forces might explain that weak association. On the one hand, growth firms prefer less leverage because it does not redirect profit from shareholders to creditors. This possibility accords with prospects that high-growth firms present default risk. On the other hand, high growth could lead lenders to expect high cash flow and profits.

4.2 Similarities Between Prefectures

As noted, testing for equality of coefficients among all prefectures might miss important characteristics of data, and statistically small differences add up when testing 47 prefectures. We therefore create all possible combinations of 47 prefectures (1,081 pairs) and test for equality of coefficients between pairs to observe similarities between prefectures and potential clusters in the capital structure of geographical regions.

We summarize results based on hypothesis tests for each variable. Our five firm-specific variables yield 32 states ($= 2^5$). For each state, we report how many pairs exhibit equality (failing to reject equality) of coefficients for each geographical region: Thoku, Kanto, Chubu, Kansai, Chugoku, Shigoku, and Kyushu. Hokkaido region is missing because it is a single prefecture. As an approximation, we report how many pairs meeting that condition are within-region and outside-region. We expect that comparatively more within-region pairs indicates clustering. The possible finding that figures of within- and outside-region are comparable would suggest that there is tendency toward dispersion.

We had 142 within-region prefectural pairs and 939 outside-region pairs.[7] As being in a different region indicates remoteness and thus dispersion, less within-region cases among 142

[7]Region by region, Thoku has 15, Kanto 21, Chubu 36, Kansai 21, Chugoku 15, Shigoku 6, and Kyushu 28 pairs whose prefectures belong to itself.

pairs would suggest greater dispersion. Tables 7, 8, and 9 display the number of pairs alongside their regions, within-region and outside-region to identify clustering on geographical regions.

After the hypothesis tests[8], Tables 7, 8, and 9 display total, long-term, and short-term debt, respectively. They tabulate the number of prefectural pairs that satisfy conditions specified in each column and report results per region, excluding single-prefecture Hokkaido. Results are summed as within-region and outside-region for all pairs. Tables report the number of pairs that meet the condition specified atop each column. We organize each column commencing with rejection of the null hypothesis (equality of coefficients) for all firm-specific variables ($H_0^1 H_0^2 H_0^3 H_0^4 H_0^5 = 00000$). We then follow with possible combinations of one, two, three, and four failures to reject the null, plus failure to reject the null for all firm-specific variables ($H_0^1 H_0^2 H_0^3 H_0^4 H_0^5 = 11111$).

Table 7 summarizes results for Equation 1 when *Leverage* is the total debt. Out of 1,081 pairs, 132 fail to reject the null hypothesis for all firm-specific variables ($H_0^1 H_0^2 H_0^3 H_0^4 H_0^5 = 11111$). This is comparably high because 12.21% of all pairs fail to reject the null hypothesis that five firm-specific variables are equal between prefectures. 25 instances among 132 pairs that meet the condition are within-region. This result shows a degree of clustering, because 18.93% of pairs (25 out of 132) is above the average which is 12.21% (132 out of 1,081).

Tests reject the null hypothesis ($H_0^1 H_0^2 H_0^3 H_0^4 H_0^5 = 00000$) for 23 of 1,081 prefectural pairs. This is relatively low, because merely a tiny percentage of pairs (2.12%) shows no statistical resemblance. Results also indicate substantial similarity among combinations of one, two, three, and four variables. Equality of one coefficient is not rejected in 130 prefectural pairs, 11 of which are within-region. We observe that 336 prefectural pairs, 34 belonging within-region, fail to reject equality between two coefficients. As per the cases where our results fail to reject the equality of three and four coefficients, we had 307 and 153 pairs in total, respectively. 42 and 25 of these pairs are from within regions, respectively for three and four

[8] $H_0^n : \beta_n^x = \beta_n^y$ where β_n is the coefficient of firm-specific variables, and x and y represent non-identical prefectures of a given prefecture pair (x, y).

coefficients.

Hypothesis tests that fail to reject equality of one through four coefficients shows considerable similarities among prefectural pairs. Arguably, with increasing similarity, the number of pairs that do not reject the null would tend to have more for the equality of increasing number coefficients. Our results show that pairs that reject the null for one through four coefficients are in relative balance. The results yet to show clustering as well, because pairs belonging to within-regions are generally low compared to pairs outside-regions. Relatively high similarity between prefectural pairs is not attributable to clustering, but indicate higher degrees of dispersion.

Tables 8 and 9 summarize the results for the Equation 1 when *Leverage* is the long-term and short-term debt, respectively. The results of the long-term and short-term debt are the reminiscent of the ones of total debt. We have substantial amount of pairs whose prefectures resemble each other in the sense that hypothesis tests fail to reject coefficient equality between themselves. The number of pairs that fail to reject the equality of all the coefficients is 96 and 77 for the long-term debt and the short-term debt, respectively. Within-region figures for the long-term debt and the short-term debt is 17 and 13, respectively. Compared to total debt, this indicates a higher degree of clustering as the pairs belonging to within-regions are relatively higher. For the remainder states of coefficient equality, we obtain results similar to the ones for the total debt.

We further investigate whether capital structure patterns of SMEs form clusters by testing the equality of coefficients among all the prefectures of regions. Our conjecture is that substantial amount of failure in the rejection of equality in doing so would imply clustering. Tables A3, A4, and A5 summarize results respectively for the all debt, long-term debt, and short-term debt. Apart from a few test results that fail to reject equality of some coefficients, our results robustly indicate that we do have substantial variation within-regions in the association of firm-specific variables and leverage. These results support our findings of considerable similarity across prefectural pairs and no significant clustering.

5 Policy Implications Amid COVID-19 Pandemic

We consider that our results and discussions have important policy implications when policy-making all over the world, including Japan, has issues such as COVID-19 pandemic. Early during the COVID-19 pandemic, the Japanese government prioritized SMEs as vulnerable and approved stimulus packages for all prefectures that included emergency lending, loan guarantees, tax breaks, and fee exemptions. Credit Guarantee Corporations guaranteed the full amount of loans to SMEs that met specified criteria.[9] The Bank of Japan introduced generous funding for regional banks to revitalize local economies.[10] Subsequent measures sought to relieve capital shortages and support employment. Studies show that these timely responses curbed bankruptcies among SMEs and that public credit guarantees were employed exhaustively.[11] The elimination of interest costs and collateral alongside full credit coverage are believed to have fostered an exponential rise in the use of credit guarantees.

Although measures injected liquidity into banks that loaned favourably to SMEs, greater leverage exacerbates financial fragility (Alfaro et al., 2019). That issue generally pertains to emerging economies, but it concerns Japan because opponents of these measures argue that bankruptcies cleanse the system and enhance productivity.[12] Policies to assist SMEs and to reduce corporate cash shortages during the pandemic need to avoid over-lending to vulnerable SMEs, especially when responding rapidly.

The geographical perspective of this study illuminates this debate. Research into geographical differences in firms' financing decisions attribute differences to degrees of local economic development, unique financial structures, autonomous local tax systems, and cul-

[9] See `www.meti.go.jp` for the details of the measures.

[10] See `https://www.boj.or.jp/en/finsys/rfs/index.htm/` for the details of the measure and updates.

[11] See `https://voxeu.org/article/impact-covid-19-firms-default-probability-japan` for the column discussing how the government interventions have been effective to mitigate firms' default probabilities.

[12] See `https://voxeu.org/article/firm-exit-patterns-and-post-covid-cleansing-mechanism` for the column discussing how government interventions may hinder productivity by letting firms to survive, that are expected to exit the market, otherwise. The authors defend that policy measures during the pandemic also functioned in similar direction and prevented "cleansing".

tures firms' business cultures. These features are mentioned in Giannetti (2003) and Hall et al. (2004), but single-country studies with a regional focus address similar features, as regional differences may pose such discrepancies (Palacín-Sánchez et al., 2013; Palacín-Sánchez and di Pietro, 2016; di Pietro et al., 2019). The geographical impact on financing decisions complicates policy because regions have singular characteristics which calls for further evidence of what geographical factors might influence different firm behaviour.

Our results highlight an important aspect of Japanese SMEs. Unlike studies that run a single test across all geographical units studied, we uncover patterns of similarity and differences across prefectures. We find significant similarities between prefectures, which are dispersed and weakly clustered, concerning the impact of firm-specific factors on financing decisions. Explanations for those findings potentially include cultural homogeneity, substantial similarities in local legal codes, and nearly homogeneous financial development. Though these features deserve future research to have a complete understanding, this study indicates a clear policy implication during the pandemic.

We consider that similarities between prefectures facilitate policy-making in the country as policy formulation is relatively less prone to geographical differences because of significant similarities in the association between firm-specific variables and debt. This means that one-size-fits-all policies would not engender huge costs and dead-weight losses. Yet for countries where firms' financing decisions are widely heterogeneous, one-size-fits-all solutions could create higher costs and dead-weight losses through debt-overhang[13] or significant capital shortages for SMEs. This consideration is important when policy-makers prepare for natural disasters, pandemics, and financial crises.

In arguing similarities, this study does not shield peculiarities among prefectures, rather unveil them. A vigilant policy-making can make use of particular peculiarities to enhance a full-fledged policy tool, once the urgency relatively eases. Such tool would complete the policy agenda to further minimize the costs of having an one-size-fits-all policy, by taking into

[13]See `https://voxeu.org/article/insolvency-and-debt-overhang-following-covid-19-outbreak` for a discussion by the OECD researchers on insolvency and debt overhang following the COVID-19 outbreak.

account of dissimilarities between prefectures, as this study also highlighted. We however argue that the impact of supply and demand side of credit relation should be investigated in order to draw a brighter picture of how similar pattern in the financing decision has arisen. This paper only investigates the final loan amount and was unable to uncover the separate contributions of supply and demand to firm leverage.

6 Conclusion

Capital structure of firms is an intriguing theme in corporate finance as the determinants of leveraging still needs deeper and evolving understanding. Driven from the evidence of cross-country evidence that points to different regional factors on the financing decision of firms, new research interest focuses on regional factors in single country cases. This is of particular importance, as cross-country evidence has a potential to disguise unique spatial impacts on capital structure of firms in a single country setting.

In this paper, we particularly shed light on the geographical patterns in the capital structure of Japan. As a unit of geographical location we studied Japanese prefectures and tried to uncover whether firm-specific determinants of leverage exhibit locational differences. Unlike a growing number of papers in the literature that investigate listed firms, we studied SMEs as they are more opaque but big segment of Japanese business. Though they are small in size, SMEs hold a large portion both in quantity and overall size in the business sector in Japan. Studying this theme for Japan is even more interesting as the geography has considerable discrepancies especially in terms of its demography, capital intensity and industrial structure. These diverse aspects of the country in addition to lack of adequate evidence stimulates scholar curiosity.

Akin to previous studies that examine the impacts of firm-specific determinants on capital structure of firms across geographies, our results discussed the direction how firm-specific variables impact financing decision of SMEs. We pointed out some differences when debt was classified according to its maturity and defined as long-term and short-term. Once we examine how spatial impact of firm-specific factors capital structure of SMEs, we find that, the equality of model coefficients are rejected at conventional statistical significance. To make an in-depth analysis, we created prefecture pairs, which in total made 1,081 prefecture pairs out of 47 prefectures. In doing so, our test results unveiled some interesting similarities between prefectures. When we make an in-depth testing for prefecture pairs, we find that the impact of firm-specific determinants of leverage does not greatly differ across prefecture pairs of the country both in terms of sign and magnitude. We, for instance, had 132 pairs out of 1,081, for which the tests fail to reject the equality of all coefficients between prefectures. The overall results also exhibit that test results that fail to reject the equality of not all but some coefficients constitute a higher portion.

We investigated whether similarities among prefectural pairs cluster geographically and found that geographical proximity does not drive prefectural similarities in five firm-specific variables that influence capital structure. Additional tests for clustering confirmed our findings.

Despite resemblances that our findings suggest for Japan, credit policies that skip regional factors may be prohibitively costly for other countries because geographies may show significant discrepancies. We suggest that regional analysis of firm behaviour would greatly reduce costs and dead-weight losses driven by one-size-fits-all policies. We also argue that supply and demand side contributions of firm borrowing deserves a vigilant analysis for a more complete analysis. We however leave this for future research. We also propose that cultural homogeneities, similarities in local legal codes, and local financial structure are likely to foster prefectural similarities in Japan. Further investigation of these topics would also enrich understanding of SMEs' financing decisions.

7 Figures and Tables

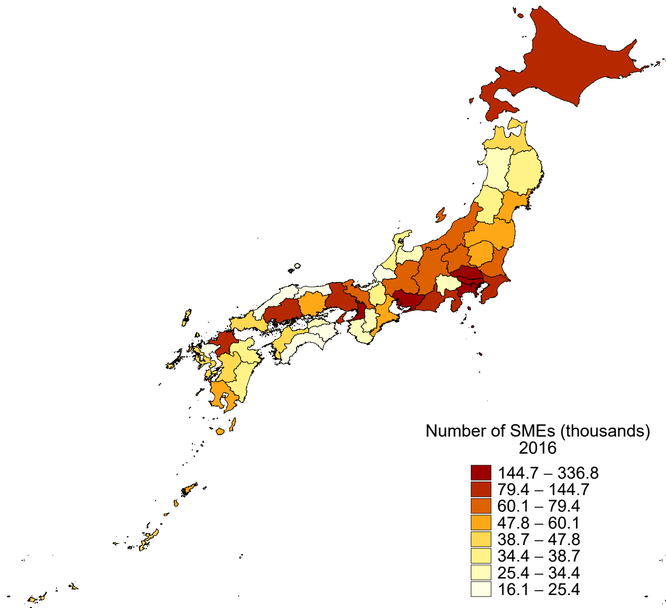

Figure 1: Number of SMEs in Japan

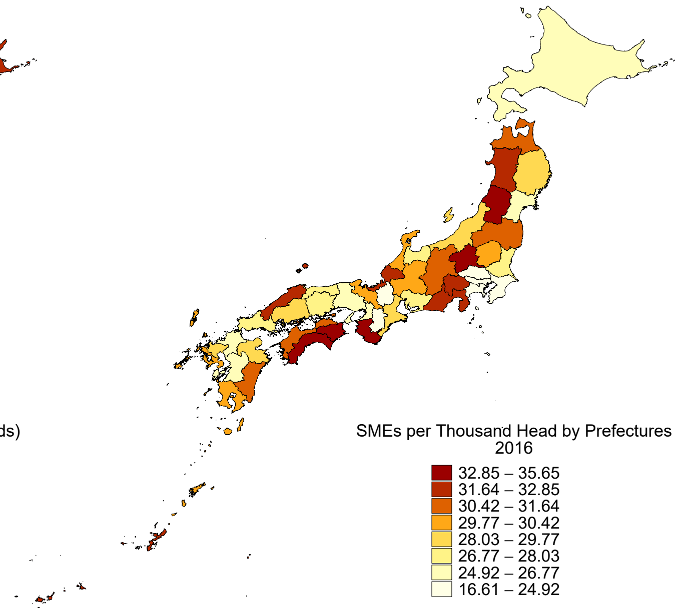

Figure 2: SMEs per head by Prefectures

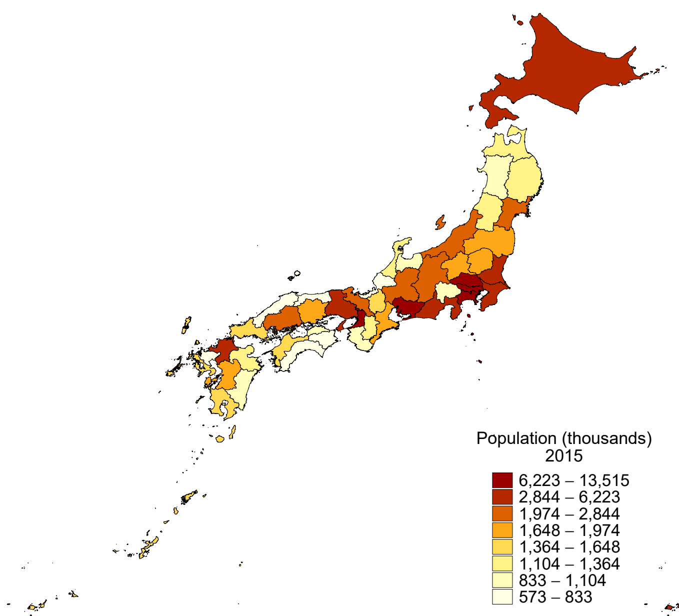

Figure 3: Population Across Japan

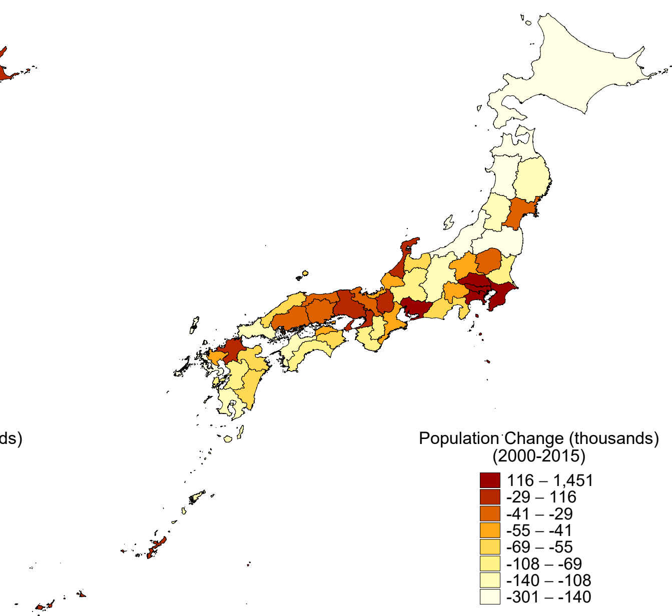

Figure 4: Population Change in Japan

Variable	Obs	Mean	Std. Dev.	Min	Max
Bank deposits per prefecture/GDP	564	0.0260	0.0581	0.0036	0.5346
Bank branch	564	468	369	143	2,130
Bank branch per thousand	564	0.2015	0.0487	0.1001	0.3124
Herfindahl-Hirschman index for loan market	564	0.2225	0.0704	0.0486	0.3700
GDP per capita	564	3,738,319	785,876	2,487,329	8,241,641
GDP growth	517	0.0024	0.0306	-0.1097	0.0941

Note: Table presents some key banking and economic indicators of Japan.

Table 1: Key Banking and Economic Indicators of Japan

Region	Prefecture	Number of SMEs	SME per capita
Hokkaido	Hokkaido	8,839	1.642
Thoku	Aomori	1,939	1.482
	Iwate	2,153	1.682
	Miyagi	3,805	1.630
	Akita	1,210	1.183
	Yamagata	2,684	2.388
	Fukushima	2,957	1.545
Kanto	Ibaraki	1,125	0.386
	Tochigi	1,686	0.854
	Gunma	1,725	0.874
	Saitama	2,503	0.344
	Chiba	2,480	0.399
	Tokyo	27,302	2.020
	Kanagawa	5,883	0.645
Chubu	Niigata	5,312	2.306
	Toyama	2,158	2.024
	Ishikawa	2,273	1.970
	Fukui	1,682	2.137
	Yamanashi	1,071	1.283
	Nagano	4,328	2.062
	Gifu	2,500	1.230
	Shizuoka	4,225	1.142
	Aichi	7,852	1.049
Kansai	Mie	1,381	0.760
	Shiga	796	0.563
	Kyoto	1,623	0.622
	Osaka	12,857	1.455
	Hyogo	4,134	0.747
	Nara	871	0.639
	Wakayama	616	0.639
Chugoku	Tottori	1,119	1.953
	Shimane	1,387	1.999
	Okayama	2,374	1.235
	Hiroshima	4,407	1.550
	Yamaguchi	1,229	0.875
Shikoku	Tokushima	584	0.772
	Kagawa	1,874	1.920
	Ehime	2,530	1.827
	Kochi	714	0.981
Kyushu	Fukuoka	4,235	0.830
	Saga	589	0.707
	Nagasaki	1,229	0.893
	Kumamoto	821	0.460
	Oita	1,659	1.423
	Miyazaki	920	0.833
	Kagoshima	1,352	0.820
	Okinawa	1,045	0.729

Note: Table presents the number of SMEs during the sample period and SMEs per thousand head for each prefecture. We use 2015 Population Census data provided by the Statistics Bureau of Japan.

Table 2: Prefecture Level Distribution of SMEs of the Sample

Data	Definition	Source	Hypotheses
$Leverage$	The ratio of the total debt to total assets	TSR	
$Size$	The logarithm of the total assets	TSR	Size has either positive or negative impact
$FixedAsset$	The ratio of net fixed assets to total assets	TSR	Asset structure has a positive impact on leverage
Age	Total years of operation of firms	TSR	Firm age has a negative impact on leverage
$Profit$	The ratio of operating income to total assets	TSR	Profitability has a negative impact on leverage
$Growth$	The annual change in total assets	TSR	Firm growth has either positive or negative impact on leverage

Note: Table presents data, definition and the sources of the variables used in the main analysis.

Table 3: Data Definition Sources and Hypotheses

Region	Prefecture	*Size*		*FixedAsset*		*Age*		*Profit*		*Growth*		Constant		Obs.	Adj. R^2
Hokkaido	Hokkaido	-0.0521***	(-6.339)	0.1333***	(4.442)	-0.0013***	(-3.709)	-1.5126***	(-4.092)	0.0003***	(3.817)	1.3874***	(12.611)	8,839	0.119
Thoku	Aomori	1.5504	(1.377)	-30.0351**	(-2.502)	0.0778	(0.824)	-506.5910***	(-2.673)	32.6359**	(2.290)	-2.3056	(-0.191)	1,939	0.636
	Iwate	-0.0964**	(-2.125)	0.2507**	(2.071)	0.0019	(0.659)	1.8070	(0.858)	-0.5457	(-1.145)	1.7589***	(4.103)	2,153	0.070
	Miyagi	-0.0502***	(-6.648)	-0.0619	(-1.448)	0.0009**	(2.079)	-1.7103***	(-3.951)	-0.0004***	(-9.316)	1.4338***	(14.808)	3,805	0.171
	Akita	-0.0199*	(-1.930)	0.2164***	(5.037)	-0.0025***	(-4.534)	-0.9517***	(-7.551)	0.0759*	(1.652)	0.9679***	(7.307)	1,210	0.115
	Yamagata	-0.0642***	(-7.583)	0.1831***	(3.198)	-0.0010*	(-1.794)	-1.0664***	(-3.397)	-0.0005***	(-8.334)	1.5254***	(14.128)	2,684	0.120
	Fukushima	-0.0433***	(-5.109)	0.0724**	(2.073)	-0.0009**	(-2.114)	-0.5694***	(-4.576)	0.0002***	(3.511)	1.3225***	(11.696)	2,957	0.059
Kanto	Ibaraki	-0.0563***	(-8.670)	-0.1368***	(-2.678)	-0.0018**	(-2.574)	-1.7602***	(-27.140)	0.0002	(0.713)	1.6312***	(17.597)	1,125	0.477
	Tochigi	-0.0678***	(-4.805)	-0.0021	(-0.038)	-0.0011*	(-1.940)	-0.7115**	(-2.450)	0.0001***	(2.877)	1.7174***	(8.643)	1,686	0.088
	Gunma	-0.0294***	(-3.500)	-0.0395	(-0.836)	-0.0022***	(-3.440)	-1.6914***	(-4.833)	0.0001**	(2.546)	1.2472***	(10.765)	1,725	0.103
	Saitama	-0.0895**	(-2.332)	0.5168*	(1.886)	-0.0099***	(-3.154)	-2.0856**	(-2.200)	-0.2524**	(-1.992)	2.2614***	(3.729)	2,503	0.051
	Chiba	-0.0156***	(-3.256)	-0.1030***	(-3.306)	-0.0014***	(-3.786)	-1.1007***	(-3.972)	-0.0003***	(-4.123)	0.9982***	(15.398)	2,480	0.090
	Tokyo	-0.0098***	(-6.610)	-0.1404***	(-12.599)	-0.0011***	(-10.919)	-1.2043***	(-10.648)	0.0001***	(4.747)	0.9089***	(35.295)	27,302	0.156
	Kanagawa	-0.0457***	(-2.588)	-0.0304	(-0.520)	-0.0020***	(-4.795)	-1.5736	(-1.310)	0.0000	(0.125)	1.4582***	(5.947)	5,883	0.054
Chubu	Niigata	-0.0493***	(-7.279)	0.2717***	(4.899)	-0.0022***	(-3.020)	-1.5179***	(-5.364)	0.0006***	(27.743)	1.3279***	(16.874)	5,312	0.065
	Toyama	-0.0018	(-0.477)	0.0818***	(3.028)	-0.0019***	(-6.082)	-0.6300***	(-4.799)	-0.0003***	(-4.867)	0.7001***	(14.700)	2,158	0.053
	Ishikawa	-0.0537***	(-10.840)	0.1689***	(2.844)	-0.0002	(-0.427)	-0.5730*	(-1.899)	0.0003***	(27.879)	1.3560***	(16.724)	2,273	0.099
	Fukui	-0.0672***	(-5.180)	-0.0612	(-0.795)	-0.0027***	(-3.657)	-2.1581*	(-1.746)	0.0897	(1.227)	1.7869***	(8.369)	1,682	0.206
	Yamanashi	-0.0950***	(-5.948)	0.1337	(1.490)	-0.0032***	(-3.097)	-1.4047**	(-2.151)	0.1436	(1.428)	2.0997***	(9.462)	1,071	0.155
	Nagano	-0.4002	(-1.103)	1.4422	(1.139)	0.0249	(0.958)	-23.6379	(-1.047)	0.0015	(1.147)	5.0145	(1.299)	4,328	0.027
	Gifu	-0.0456***	(-5.888)	0.0348	(0.715)	-0.0018***	(-2.881)	-0.5228**	(-2.151)	0.0150	(0.268)	1.3677***	(12.639)	2,500	0.078
	Shizuoka	-0.0607	(-0.262)	-1.7030	(-1.179)	0.0001	(0.021)	-72.0439	(-1.305)	-0.0123	(-0.654)	3.7654	(1.196)	4,225	0.261
	Aichi	-0.0249***	(-6.865)	-0.1065*	(-1.834)	-0.0032***	(-8.711)	-3.0829*	(-1.768)	0.0004***	(5.385)	1.2589***	(16.956)	7,852	0.178
Kansai	Mie	-0.0585***	(-7.128)	0.1321***	(2.799)	-0.0009*	(-1.729)	-0.1195	(-0.223)	-0.0091	(-0.120)	1.4801***	(14.101)	1,381	0.093
	Shiga	-0.0602***	(-3.511)	0.3050***	(3.302)	-0.0023*	(-1.957)	-1.1179***	(-2.944)	0.1939*	(1.775)	1.4801***	(5.973)	796	0.195
	Kyoto	-0.0358***	(-2.612)	0.0114	(0.162)	-0.0061***	(-5.506)	-6.3377*	(-1.855)	-0.0001*	(-1.918)	1.6333***	(4.911)	1,623	0.233
	Osaka	-0.0140***	(-7.354)	-0.1090***	(-8.384)	-0.0026***	(-21.052)	-1.2048***	(-8.227)	-0.0002*	(-1.916)	1.0377***	(33.302)	12,857	0.152
	Hyogo	-0.0239***	(-4.120)	0.0274	(0.412)	-0.0030***	(-6.260)	-2.1093	(-1.538)	0.0001	(0.932)	1.1748***	(8.314)	4,134	0.095
	Nara	-0.0556***	(-3.865)	0.0872	(1.024)	-0.0017**	(-2.314)	-0.7922***	(-3.495)	0.0002***	(4.075)	1.5121***	(8.383)	871	0.080
	Wakayama	-0.0342**	(-2.465)	0.1976***	(2.935)	-0.0014	(-1.485)	0.5933	(1.253)	0.1757**	(2.348)	1.0762***	(6.064)	616	0.048
Chugoku	Tottori	-0.0410***	(-3.057)	0.0802	(1.639)	-0.0019***	(-2.917)	-1.0842***	(-3.184)	0.0003***	(11.427)	1.3519***	(7.545)	1,119	0.090
	Shimane	-0.1235***	(-7.227)	0.1943***	(3.659)	0.0008	(1.096)	-0.8045***	(-3.590)	0.1025	(1.480)	2.1956***	(9.629)	1,387	0.170
	Okayama	-0.0662***	(-3.115)	0.0820*	(1.807)	0.0111**	(2.478)	-2.0707***	(-3.346)	0.0001	(0.576)	1.1402***	(8.118)	2,374	0.057
	Hiroshima	-0.1082***	(-6.191)	-0.1385***	(-2.587)	-0.0033***	(-7.463)	-1.1854***	(-3.060)	0.0005***	(14.224)	2.4675***	(9.848)	4,407	0.155
	Yamaguchi	-0.0541***	(-3.056)	0.3927***	(7.215)	-0.0026***	(-3.982)	-1.2823***	(-5.198)	0.1276*	(1.647)	1.4399***	(5.782)	1,229	0.118
Shikoku	Tokushima	-0.0233**	(-2.385)	0.0200	(0.359)	-0.0000	(-0.056)	-0.3223	(-1.075)	0.0079	(0.120)	1.0037***	(8.655)	584	0.011
	Kagawa	-0.0921***	(-2.770)	-0.0741	(-0.971)	0.0012	(0.723)	0.6266	(0.913)	0.0003**	(2.186)	1.9289***	(4.564)	1,874	0.025
	Ehime	-0.0319*	(-1.844)	-0.0730	(-0.618)	-0.0033***	(-3.936)	-5.6137***	(-2.750)	0.2466	(1.130)	1.4368***	(7.424)	2,530	0.344
	Kochi	-0.1472***	(-8.410)	0.2138**	(2.327)	0.0034***	(3.821)	-1.2193**	(-2.429)	0.0389***	(36.685)	2.5181***	(10.190)	714	0.232
Kyushu	Fukuoka	0.0961	(1.155)	-0.4952	(-1.285)	-0.0023	(-0.841)	-26.8782*	(-1.773)	0.0002	(0.308)	0.3493	(0.484)	4,235	0.440
	Saga	-0.0067	(-0.619)	-0.0891	(-1.210)	0.0008	(0.791)	-0.5777**	(-2.092)	0.2099***	(2.906)	0.7268***	(5.093)	589	0.017
	Nagasaki	-0.0328**	(-2.452)	0.2427***	(5.276)	-0.0006	(-1.034)	-0.1110	(-0.280)	0.0800	(1.346)	1.0649***	(6.321)	1,229	0.037
	Kumamoto	0.0135***	(2.593)	0.0418	(1.016)	-0.0022***	(-4.165)	-0.4815***	(-2.849)	0.0994***	(2.918)	0.5444***	(7.838)	821	0.030
	Oita	-0.0169***	(-3.018)	0.3188***	(7.920)	0.0001	(0.278)	-0.1413	(-1.579)	0.0281	(1.568)	0.7511***	(10.977)	1,659	0.056
	Miyazaki	-0.0090	(-1.475)	0.3345***	(4.352)	-0.0046***	(-6.306)	-0.5433***	(-2.626)	0.0551	(1.231)	0.8356***	(10.583)	920	0.072
	Kagoshima	0.0114**	(2.279)	0.0004	(0.013)	-0.0012***	(-2.777)	-0.5448***	(-8.053)	0.0001***	(3.854)	0.5148***	(8.248)	1,352	0.028
	Okinawa	0.0037	(0.484)	-0.0010	(-0.035)	-0.0011**	(-2.163)	-0.8474**	(-2.472)	0.0669**	(1.982)	0.6657***	(5.938)	1,045	0.053
	Japan	0.0338	(0.497)	-0.8020	(-1.110)	-0.0033**	(-2.344)	-22.0995	(-1.388)	0.0000	(0.032)	1.2740***	(5.960)	148,038	0.035

Note: Robust t-statistics are in parentheses. ***, **, and * represent statistical significance at 1%, 5%, and 10%, respectively.

Table 4: The Impact of Firm-Specific Determinants on Total Debt across Prefectures

Region	Prefecture	*Size*		*FixedAsset*		*Age*		*Profit*		*Growth*		Constant		Obs.	Adj. R^2
Hokkaido	Hokkaido	-0.0587***	(-20.814)	0.2906***	(15.494)	-0.0015***	(-5.317)	-0.8242***	(-19.125)	0.0002	(0.533)	0.9598***	(28.089)	8,839	0.129
Thoku	Aomori	1.0991	(1.486)	-21.5829***	(-4.634)	0.0555	(0.812)	-368.5319***	(-57.127)	23.6900***	(5.179)	-1.6124	(-0.186)	1,939	0.635
	Iwate	-0.0765***	(-12.035)	0.5025***	(11.549)	0.0006	(0.938)	0.8421***	(10.399)	-0.3092***	(-7.461)	1.0161***	(13.265)	2,153	0.154
	Miyagi	-0.0577***	(-16.107)	0.3160***	(12.867)	-0.0006	(-1.554)	-0.9706***	(-18.765)	-0.0002	(-0.698)	0.9522***	(21.587)	3,805	0.200
	Akita	-0.0498***	(-11.165)	0.4259***	(15.188)	-0.0025***	(-6.469)	-0.1709***	(-2.779)	-0.0393	(-1.387)	0.8455***	(15.391)	1,210	0.274
	Yamagata	-0.0507***	(-14.918)	0.4830***	(21.068)	-0.0010***	(-3.331)	-0.3827***	(-6.001)	-0.0002	(-0.515)	0.7768***	(18.862)	2,684	0.225
	Fukushima	-0.0684***	(-20.516)	0.3835***	(16.288)	-0.0013***	(-4.150)	-0.1830***	(-3.809)	-0.0000	(-0.143)	1.0700***	(25.452)	2,957	0.218
Kanto	Ibaraki	-0.0392***	(-9.706)	0.2291***	(7.215)	-0.0016***	(-3.741)	0.0642	(1.592)	-0.0000	(-0.141)	0.7045***	(12.230)	1,125	0.120
	Tochigi	-0.0670***	(-16.477)	0.3380***	(12.576)	-0.0007*	(-1.885)	-0.2149***	(-2.607)	0.0002	(0.743)	1.0573***	(20.421)	1,686	0.223
	Gunma	-0.0523***	(-13.068)	0.1833***	(5.328)	-0.0021***	(-4.911)	-1.3019***	(-11.345)	0.0000	(0.124)	1.0289***	(18.535)	1,725	0.191
	Saitama	-0.0114***	(-4.714)	0.1681***	(8.159)	-0.0029***	(-11.350)	-0.5216***	(-8.266)	-0.0696***	(-3.339)	0.4480***	(12.618)	2,503	0.103
	Chiba	-0.0255***	(-7.738)	0.2134***	(8.828)	-0.0022***	(-6.664)	-0.3326***	(-4.496)	-0.0001	(-0.466)	0.5881***	(14.039)	2,480	0.076
	Tokyo	-0.0134***	(-17.974)	0.2066***	(31.050)	-0.0016***	(-22.247)	-0.6954***	(-52.132)	-0.0000	(-0.262)	0.3693***	(32.886)	27,302	0.143
	Kanagawa	-0.0272***	(-9.615)	0.2653***	(11.775)	-0.0022***	(-7.976)	-1.8836***	(-37.768)	0.0000	(0.304)	0.6418***	(16.286)	5,883	0.241
Chubu	Niigata	-0.0511***	(-12.536)	0.4695***	(16.842)	-0.0021***	(-5.135)	-1.1296***	(-14.524)	-0.0002	(-0.349)	0.8272***	(16.947)	5,312	0.132
	Toyama	-0.0106***	(-4.210)	0.2843***	(13.725)	-0.0016***	(-6.460)	-0.4035***	(-7.647)	-0.0003**	(-1.980)	0.2926***	(8.740)	2,158	0.128
	Ishikawa	-0.0449***	(-15.032)	0.4186***	(16.135)	-0.0017***	(-5.025)	-0.3735***	(-6.102)	0.0001	(0.538)	0.7545***	(18.268)	2,273	0.230
	Fukui	-0.0461***	(-12.318)	0.2809***	(8.688)	-0.0011**	(-2.483)	-0.4256***	(-8.972)	-0.0471***	(-2.660)	0.8189***	(17.729)	1,682	0.199
	Yamanashi	-0.0778***	(-12.415)	0.5423***	(11.963)	-0.0022***	(-3.450)	-0.1627	(-1.436)	0.0527	(1.197)	1.1626***	(15.045)	1,071	0.213
	Nagano	-0.4221***	(-3.842)	1.7225**	(2.082)	0.0272**	(2.289)	-23.0689***	(-9.208)	0.0016	(0.144)	4.6359***	(3.115)	4,328	0.027
	Gifu	-0.0375***	(-12.169)	0.2014***	(7.963)	-0.0008**	(-2.565)	-0.1840***	(-2.755)	-0.0566*	(-1.918)	0.6947***	(16.823)	2,500	0.101
	Shizuoka	-0.0106	(-0.081)	-1.5248	(-1.417)	0.0021	(0.161)	-72.7058***	(-38.783)	-0.0131	(-1.015)	2.4416	(1.419)	4,225	0.265
	Aichi	-0.0280***	(-8.269)	0.1918***	(6.987)	-0.0028***	(-8.535)	-2.8092***	(-36.728)	0.0001	(0.153)	0.7167***	(14.771)	7,852	0.181
Kansai	Mie	-0.0436***	(-9.412)	0.2840***	(8.945)	-0.0016***	(-3.642)	0.0899	(0.917)	-0.0970**	(-2.440)	0.7742***	(13.444)	1,381	0.145
	Shiga	-0.0646***	(-9.810)	0.4281***	(10.469)	-0.0011*	(-1.811)	-0.3881***	(-3.759)	0.0986	(1.569)	1.0301***	(11.811)	796	0.263
	Kyoto	-0.0386***	(-4.096)	0.1944**	(2.384)	-0.0057***	(-6.470)	-6.0621***	(-22.066)	0.0000	(0.016)	1.1579***	(8.452)	1,623	0.264
	Osaka	-0.0217***	(-18.606)	0.2028***	(20.370)	-0.0026***	(-24.724)	-0.7120***	(-27.352)	-0.0001	(-1.436)	0.5922***	(34.324)	12,857	0.151
	Hyogo	-0.0203***	(-7.914)	0.3285***	(14.066)	-0.0031***	(-12.903)	-1.3606***	(-19.118)	-0.0001	(-0.380)	0.5625***	(15.478)	4,134	0.167
	Nara	-0.0691***	(-8.213)	0.3632***	(6.474)	-0.0021***	(-2.926)	-0.5623***	(-3.350)	0.0000	(0.151)	1.2317***	(11.163)	871	0.138
	Wakayama	-0.0318***	(-5.549)	0.4073***	(10.314)	0.0004	(0.607)	0.3747***	(2.833)	0.0498	(1.117)	0.4677***	(6.034)	616	0.172
Chugoku	Tottori	-0.0389***	(-5.788)	0.4125***	(10.246)	-0.0013**	(-2.407)	-0.7077***	(-6.390)	0.0000	(0.056)	0.6708***	(8.297)	1,119	0.158
	Shimane	-0.0901***	(-16.504)	0.3195***	(8.686)	0.0007	(1.514)	-0.3983***	(-5.145)	-0.0196	(-0.541)	1.2993***	(18.895)	1,387	0.232
	Okayama	-0.0549***	(-7.004)	0.2829***	(5.005)	0.0064***	(9.459)	-1.1062***	(-6.107)	0.0001	(0.379)	0.6349***	(6.198)	2,374	0.070
	Hiroshima	-0.0592***	(-18.434)	0.3387***	(13.809)	-0.0029***	(-8.268)	-0.1683***	(-3.773)	0.0002	(0.549)	1.0728***	(25.671)	4,407	0.147
	Yamaguchi	-0.0827***	(-8.184)	0.4709***	(6.877)	-0.0011	(-1.185)	-0.6030***	(-4.387)	0.0016	(0.020)	1.2757***	(9.989)	1,229	0.115
Shikoku	Tokushima	-0.0238***	(-3.696)	0.1012**	(2.384)	0.0013**	(2.071)	-0.1579	(-0.919)	-0.1224**	(-2.391)	0.4627***	(5.753)	584	0.043
	Kagawa	-0.0949***	(-8.542)	0.1633*	(1.935)	0.0025**	(2.161)	0.6156***	(2.763)	0.0001	(0.120)	1.3612***	(9.214)	1,874	0.039
	Ehime	-0.0289***	(-7.566)	0.3908***	(13.748)	-0.0042***	(-9.584)	-0.1235**	(-2.080)	-0.1216***	(-3.785)	0.6683***	(15.113)	2,530	0.143
	Kochi	-0.1045***	(-9.329)	0.3766***	(4.795)	-0.0001	(-0.116)	-1.0429***	(-5.919)	0.0412***	(9.097)	1.5723***	(11.631)	714	0.241
Kyushu	Fukuoka	-0.0228***	(-6.512)	0.2385***	(8.329)	-0.0025***	(-6.803)	-2.4866***	(-50.148)	-0.0001	(-0.261)	0.6117***	(13.106)	4,235	0.407
	Saga	-0.0344***	(-5.215)	0.3986***	(8.541)	0.0008	(1.367)	-0.4935***	(-4.642)	0.1386**	(2.509)	0.4997***	(6.071)	589	0.182
	Nagasaki	-0.0262***	(-6.864)	0.4773***	(19.329)	-0.0023***	(-7.154)	-0.1320	(-1.397)	-0.0197	(-0.599)	0.4807***	(10.187)	1,229	0.289
	Kumamoto	-0.0155***	(-3.690)	0.3691***	(12.435)	-0.0015***	(-3.421)	-0.1683	(-1.502)	-0.0298	(-0.943)	0.3237***	(6.068)	821	0.183
	Oita	-0.0221***	(-6.262)	0.5046***	(20.907)	-0.0012***	(-3.413)	-0.0748***	(-2.610)	0.0329*	(1.929)	0.3497***	(7.928)	1,659	0.214
	Miyazaki	-0.0100	(-1.517)	0.5178***	(11.460)	-0.0025***	(-3.907)	0.0158	(0.114)	-0.0453	(-1.093)	0.2361***	(2.804)	920	0.132
	Kagoshima	-0.0029	(-0.883)	0.2205***	(10.867)	-0.0014***	(-4.612)	-0.4102***	(-6.700)	0.0000	(0.126)	0.1961***	(4.834)	1,352	0.119
	Okinawa	-0.0163***	(-4.134)	0.2824***	(12.531)	-0.0013***	(-2.862)	-0.3750***	(-5.119)	-0.0041	(-0.190)	0.3635***	(7.478)	1,045	0.156
	Japan	0.0133	(1.037)	-0.2990***	(-2.917)	-0.0028**	(-2.229)	-15.9948***	(-69.835)	-0.0001	(-0.103)	0.7159***	(4.090)	148,038	0.032

Note: Robust t-statistics are in parentheses. ***, **, and * represent statistical significance at 1%, 5%, and 10%, respectively.

Table 5: The Impact of Firm-Specific Determinants on Long-Term Debt across Prefectures

Region	Prefecture	*Size*		*FixedAsset*		*Age*		*Profit*		*Growth*		Constant		Obs.	Adj. R^2
Hokkaido	Hokkaido	-0.0032*	(-1.910)	0.0292***	(2.620)	0.0005***	(3.234)	-0.4547***	(-17.725)	0.0003	(0.983)	0.1490***	(7.328)	8,839	0.039
Thoku	Aomori	0.0559**	(2.038)	-0.8055***	(-4.660)	0.0027	(1.053)	-13.8819***	(-57.975)	0.8561***	(5.043)	-0.1933	(-0.600)	1,939	0.641
	Iwate	-0.0028	(-0.715)	0.0497*	(1.839)	0.0018***	(4.689)	0.4647***	(9.237)	-0.1681***	(-6.530)	0.0312	(0.655)	2,153	0.065
	Miyagi	0.0022	(0.988)	0.0047	(0.317)	0.0003	(1.568)	-0.5407***	(-17.171)	-0.0001	(-0.470)	0.0673**	(2.506)	3,805	0.075
	Akita	0.0150***	(4.841)	0.0119	(0.611)	0.0009***	(3.207)	-0.5873***	(-13.777)	0.0011	(0.058)	-0.1280***	(-3.362)	1,210	0.166
	Yamagata	-0.0047	(-1.468)	-0.0223	(-1.025)	0.0001	(0.168)	-0.6470***	(-10.667)	-0.0002	(-0.732)	0.1917***	(4.895)	2,684	0.043
	Fukushima	0.0046**	(2.167)	-0.0001	(-0.005)	0.0012***	(5.643)	-0.1701***	(-5.574)	-0.0001	(-0.759)	0.0034	(0.129)	2,957	0.024
Kanto	Ibaraki	-0.0035	(-1.195)	0.0029	(0.127)	-0.0002	(-0.793)	-0.0148	(-0.514)	0.0000	(0.210)	0.1716***	(4.159)	1,125	-0.002
	Tochigi	-0.0008	(-0.238)	-0.0638***	(-3.011)	0.0004	(1.245)	-0.3983***	(-6.134)	0.0001	(0.310)	0.1694***	(4.152)	1,686	0.024
	Gunma	0.0124***	(5.353)	0.0027	(0.137)	0.0001	(0.291)	-0.7021***	(-10.535)	-0.0000	(-0.170)	-0.0430	(-1.333)	1,725	0.067
	Saitama	-0.0805***	(-5.500)	0.5194***	(4.178)	-0.0071***	(-4.616)	-1.6786***	(-4.408)	-0.2139*	(-1.701)	1.4697***	(6.859)	2,503	0.036
	Chiba	0.0011	(0.444)	-0.0849***	(-4.899)	0.0010***	(4.189)	-0.5882***	(-11.087)	-0.0004	(-1.586)	0.1029***	(3.426)	2,480	0.058
	Tokyo	-0.0027***	(-4.962)	-0.0206***	(-4.203)	0.0000	(0.347)	-0.3584***	(-36.503)	0.0000	(1.000)	0.1458***	(17.648)	27,302	0.049
	Kanagawa	-0.0024**	(-2.304)	0.0162*	(1.921)	-0.0004***	(-4.292)	-0.1930***	(-10.342)	-0.0000	(-0.699)	0.1472***	(9.985)	5,883	0.024
Chubu	Niigata	-0.0029	(-1.445)	0.0916***	(6.578)	-0.0001	(-0.479)	-0.3426***	(-8.817)	-0.0001	(-0.453)	0.1124***	(4.610)	5,312	0.025
	Toyama	-0.0002	(-0.131)	0.0988***	(6.813)	-0.0000	(-0.290)	-0.1896***	(-5.134)	-0.0001	(-1.161)	0.0584**	(2.490)	2,158	0.033
	Ishikawa	-0.0167***	(-7.776)	0.0493***	(2.647)	0.0010***	(4.231)	-0.1145***	(-2.606)	-0.0000	(-0.150)	0.2853***	(9.625)	2,273	0.034
	Fukui	-0.0138*	(-1.778)	-0.0215	(-0.322)	-0.0006	(-0.706)	-1.2578***	(-12.822)	0.0424	(1.156)	0.3610***	(3.779)	1,682	0.098
	Yamanashi	-0.0103**	(-1.987)	-0.0445	(-1.183)	-0.0001	(-0.274)	-0.8896***	(-9.467)	-0.0276	(-0.756)	0.3215***	(5.015)	1,071	0.086
	Nagano	0.0040**	(2.475)	0.0223*	(1.850)	-0.0003**	(-1.985)	-0.2806***	(-7.691)	0.0002	(1.363)	0.0765***	(3.530)	4,328	0.015
	Gifu	-0.0103***	(-3.849)	0.0710***	(3.236)	-0.0004	(-1.294)	-0.0235	(-0.406)	-0.0486*	(-1.899)	0.2622***	(7.317)	2,500	0.013
	Shizuoka	-0.0468***	(-13.690)	0.0864***	(3.101)	-0.0014***	(-4.171)	0.2482***	(5.115)	0.0007**	(1.981)	0.8377***	(18.814)	4,225	0.061
	Aichi	-0.0041***	(-3.991)	-0.0154*	(-1.839)	-0.0002**	(-2.464)	-0.3313***	(-14.178)	0.0002**	(2.134)	0.1954***	(13.187)	7,852	0.031
Kansai	Mie	-0.0174***	(-5.575)	-0.0302	(-1.413)	0.0006*	(1.942)	-0.0669	(-1.012)	-0.0613**	(-2.292)	0.3621***	(9.338)	1,381	0.030
	Shiga	-0.0026	(-0.508)	0.0835***	(2.638)	-0.0015***	(-3.139)	-0.5623***	(-7.036)	-0.0270	(-0.556)	0.1804***	(2.673)	796	0.100
	Kyoto	-0.0007	(-0.391)	0.0172	(1.179)	-0.0002	(-1.017)	-0.3589***	(-7.286)	-0.0001	(-0.790)	0.1045***	(4.256)	1,623	0.032
	Osaka	-0.0009	(-1.288)	-0.0335***	(-5.340)	-0.0004***	(-5.821)	-0.4412***	(-26.904)	-0.0000	(-0.368)	0.1401***	(12.893)	12,857	0.059
	Hyogo	-0.0044***	(-3.379)	-0.0014	(-0.121)	-0.0001	(-0.646)	-0.1774***	(-4.957)	0.0002*	(1.763)	0.1588***	(8.688)	4,134	0.010
	Nara	0.0029	(0.871)	-0.0890***	(-4.031)	0.0000	(0.047)	-0.3079***	(-4.659)	-0.0001	(-0.716)	0.0931**	(2.143)	871	0.033
	Wakayama	-0.0124***	(-2.735)	-0.0530*	(-1.694)	0.0010*	(1.957)	0.0542	(0.516)	-0.0203	(-0.573)	0.2570***	(4.182)	616	0.012
Chugoku	Tottori	-0.0117**	(-1.974)	0.0776**	(2.180)	0.0009*	(1.871)	0.0816	(0.834)	0.0002	(0.709)	0.2081***	(2.912)	1,119	0.005
	Shimane	-0.0248***	(-7.826)	0.0404*	(1.894)	0.0003	(0.951)	-0.2673***	(-5.954)	0.0140	(0.664)	0.3780***	(9.482)	1,387	0.077
	Okayama	-0.0144**	(-2.364)	0.0141	(0.321)	0.0055***	(10.457)	-0.9736***	(-6.914)	-0.0000	(-0.049)	0.0892	(1.120)	2,374	0.063
	Hiroshima	-0.0163***	(-5.782)	-0.1195***	(-5.539)	-0.0003	(-0.873)	-1.2516***	(-31.907)	0.0001	(0.190)	0.4426***	(12.044)	4,407	0.225
	Yamaguchi	0.0202***	(6.562)	0.1540***	(7.399)	-0.0000	(-0.069)	-0.1277***	(-3.056)	-0.0301	(-1.296)	-0.2147***	(-5.531)	1,229	0.101
Shikoku	Tokushima	0.0073	(1.388)	-0.0111	(-0.323)	-0.0001	(-0.209)	0.1075	(0.772)	-0.0023	(-0.055)	0.0195	(0.299)	584	-0.003
	Kagawa	-0.0069**	(-2.033)	0.0159	(0.614)	-0.0010***	(-2.746)	-0.2602***	(-3.800)	-0.0001	(-0.392)	0.2584***	(5.693)	1,874	0.018
	Ehime	-0.0016	(-0.211)	-0.1439***	(-2.587)	0.0006	(0.690)	-4.3097***	(-37.102)	0.1734***	(2.760)	0.2797***	(3.234)	2,530	0.364
	Kochi	-0.0314***	(-7.515)	0.0843***	(2.883)	0.0038***	(9.694)	-0.1719***	(-2.619)	-0.0018	(-1.060)	0.3405***	(6.763)	714	0.143
Kyushu	Fukuoka	0.0898***	(3.881)	-0.2254	(-1.189)	0.0004	(0.172)	-17.8708***	(-54.448)	0.0000	(0.033)	-0.5959*	(-1.929)	4,235	0.413
	Saga	0.0131***	(2.968)	-0.0264	(-0.847)	-0.0004	(-1.160)	-0.1314*	(-1.849)	-0.0070	(-0.189)	-0.0633	(-1.151)	589	0.012
	Nagasaki	-0.0064	(-1.255)	0.0259	(0.781)	0.0004	(0.912)	-0.1486	(-1.173)	-0.0690	(-1.564)	0.1991***	(3.145)	1,229	0.003
	Kumamoto	0.0144***	(4.181)	-0.0472*	(-1.933)	0.0003	(0.930)	-0.2993***	(-3.250)	-0.0379	(-1.461)	-0.0747*	(-1.704)	821	0.033
	Oita	0.0091***	(3.800)	0.0551***	(3.369)	0.0006**	(2.337)	-0.0246	(-1.267)	-0.0145	(-1.256)	-0.0669**	(-2.240)	1,659	0.031
	Miyazaki	0.0039	(1.247)	0.0566***	(2.637)	-0.0007**	(-2.378)	-0.2582***	(-3.895)	0.0072	(0.367)	0.0544	(1.360)	920	0.024
	Kagoshima	0.0107***	(4.393)	0.0084	(0.551)	0.0001	(0.642)	-0.1584***	(-3.454)	-0.0001	(-0.614)	-0.0518*	(-1.706)	1,352	0.024
	Okinawa	0.0105***	(3.113)	-0.0079	(-0.412)	-0.0024***	(-6.195)	-0.3035***	(-4.833)	-0.0462**	(-2.475)	0.0714*	(1.713)	1,045	0.057
	Japan	-0.0004	(-0.403)	-0.0225***	(-2.625)	-0.0002**	(-2.177)	-1.7647***	(-92.006)	0.0000	(0.063)	0.1812***	(12.365)	148,038	0.055

Note: Robust t-statistics are in parentheses. ***, **, and * represent statistical significance at 1%, 5%, and 10%, respectively.

Table 6: The Impact of Firm-Specific Determinants on Short-Term Debt across Prefectures

State of Test Result	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 00000	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 10000	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 01000	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 00100	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 00010	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 00001	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 11000	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 10100	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 10010	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 10001	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 01100	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 01010	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 01001	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 00110	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 00101	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 00011
Thoku (15)	2	1	0	0	0	0	0	5	0	0	0	1	0	1	0	0
Kanto (21)	0	0	0	0	2	0	0	0	4	0	0	0	0	0	0	2
Chubu (36)	0	0	0	1	1	0	1	0	0	0	0	1	0	1	0	2
Kansai (21)	0	1	0	0	0	1	0	2	1	0	0	0	0	3	0	0
Chugoku (15)	0	0	0	0	1	0	0	0	2	0	0	0	1	0	0	1
Shikoku (6)	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1
Kyushu (28)	1	0	0	0	0	2	0	0	1	0	0	0	0	0	0	3
Within-region (142)	4	2	0	1	4	4	1	8	8	0	0	2	1	5	0	9
Outside-region (939)	19	10	13	22	50	24	11	54	25	32	8	38	18	38	28	50
All (1081)	23	12	13	23	54	28	12	62	33	32	8	40	19	43	28	59

State of Test Result	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 11100	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 10110	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 10101	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 10011	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 11010	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 11001	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 01110	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 01101	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 01011	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 00111	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 11110	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 10111	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 11011	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 11101	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 01111	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 11111
Thoku (15)	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	2
Kanto (21)	0	0	1	0	0	0	3	1	0	1	2	0	0	0	2	3
Chubu (36)	0	0	1	2	0	0	0	0	1	2	0	2	0	0	5	16
Kansai (21)	1	2	0	1	2	1	0	0	1	0	1	1	0	1	1	1
Chugoku (15)	0	1	0	1	0	0	0	0	1	1	0	0	1	0	0	0
Shikoku (6)	0	0	0	0	0	2	0	1	0	0	0	0	0	1	1	1
Kyushu (28)	3	1	3	1	2	1	0	0	1	2	2	1	1	1	0	2
Within-region (142)	4	4	5	6	4	4	3	2	4	6	5	5	2	3	10	25
Outside-region (939)	5	32	26	16	32	27	26	22	43	36	30	21	22	22	33	107
All (1081)	9	36	31	22	36	31	29	24	47	42	35	26	24	25	43	132

Note: Table tabulates F-test results of coefficient equality across prefecture pairs for the equation of total debt. Tests are the null hypotheses that each of the firm-specific variables is the same between the pairs. In our sample, 47 Japanese prefectures constitute 1081 pairs from all possible combinations of prefectures of which 142 pairs come from the same region, i.e.$\binom{47}{2}$. We test equality of all coefficients for a pair as $H_0^n : \beta_n^x = \beta_n^y$ where β_n is the coefficient of firm-specific variables represented by the vector X in the equation $Leverage_{i,j} = \alpha_{i,j} + \beta X_i + \varepsilon_i$ that is estimated to determine capital structure of firms, and x and y represent two prefectures that are not identical. We specify combination of states by $H_0^1H_0^2H_0^3H_0^4H_0^5$ that indicates hypothesis testing for each variable in the equation; i.e. firm size, fixed asset, firm age, profitability, and firm growth rate. If the hypothesis is rejected the state is represented by "0 " and "1", otherwise. For instance, the representation of "10101" indicates that the equality of coefficient belonging to firm size β_1 is not rejected, the equality of coefficient belonging to fixed assets β_2 is rejected, the equality of coefficient belonging to firm age β_3 is not rejected, the equality of coefficient belonging to profitability β_4 is rejected, and the equality of coefficient belonging to firm growth β_5 can is not rejected, at the 10% significance level. Then the table tabulates the number of pairs that satisfy the conditions specified in each column. Table reports the results per each region excluding Hokkaido where there is only one prefecture which is itself. The results sum up for regions as with-in and the remaining as with-out and for all pairs. Once the pairs come from the same region and satisfy the condition, that counts in that specific region.

Table 7: F-test for the Equality of Coefficients of Firm-specific Variables Across Prefecture Pairs for All Debt

State of Test Result	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 00000	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 10000	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 01000	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 00100	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 00010	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 00001	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 11000	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 10100	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 10010	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 10001	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 01100	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 01010	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 01001	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 00110	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 00101	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 00011
Thoku (15)	0	0	0	0	0	0	1	6	0	1	0	0	0	1	0	0
Kanto (21)	3	0	3	0	3	0	0	0	1	0	3	1	0	0	0	0
Chubu (36)	0	0	0	1	1	1	0	0	0	0	0	1	0	3	0	1
Kansai (21)	1	0	1	0	0	0	1	0	1	2	1	0	2	1	0	2
Chugoku (15)	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1
Shikoku (6)	0	3	1	1	1	0	0	0	0	0	0	1	1	0	0	0
Kyushu (28)	0	2	2	1	2	0	2	0	0	2	0	1	1	0	0	1
Within-region (142)	4	5	7	3	7	1	4	6	2	5	4	5	5	5	0	5
Outside-region (939)	23	22	19	23	63	45	6	50	25	25	13	40	23	32	31	65
All (1081)	27	27	26	26	70	46	10	56	27	30	17	45	28	37	31	70
State of Test Result	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 11100	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 10110	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 10101	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 10011	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 11010	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 11001	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 01110	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 01101	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 01011	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 00111	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 11110	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 10111	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 11011	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 11101	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 01111	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 11111
Thoku (15)	0	0	1	0	0	0	0	0	1	0	0	1	2	0	0	1
Kanto (21)	0	0	0	0	0	0	0	3	1	0	1	0	0	1	1	0
Chubu (36)	1	0	1	0	0	0	0	1	1	3	0	3	1	0	2	15
Kansai (21)	0	1	0	3	1	1	0	0	0	0	0	1	0	0	1	1
Chugoku (15)	0	0	0	4	0	1	0	0	1	0	0	0	0	0	1	0
Shikoku (6)	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0
Kyushu (28)	0	1	3	2	0	1	0	0	0	3	0	2	1	0	1	0
Within-region (142)	1	2	5	10	1	3	1	4	4	6	1	7	4	1	6	17
Outside-region (939)	3	13	16	30	16	14	22	22	48	59	25	24	24	12	28	79
All (1081)	4	15	21	40	17	17	23	26	52	65	26	31	28	13	34	96

Note: Table tabulates F-test results of coefficient equality across prefecture pairs for the equation of long-term debt. Tests are the null hypotheses that each of the firm-specific variables is the same between the pairs. In our sample, 47 Japanese prefectures constitute 1081 pairs from all possible combinations of prefectures of which 142 pairs come from the same region, i.e. $\binom{47}{2}$. We test equality of all coefficients for a pair as $H_0^n : \beta_n^x = \beta_n^y$ where β_n is the coefficient of firm-specific variables represented by the vector X in the equation $Leverage_{i,j} = \alpha_{i,j} + \beta X_i + \varepsilon_i$ that is estimated to determine financing decision of firms, and x and y represent two prefectures that are not identical. We specify combination of states by $H_0^1H_0^2H_0^3H_0^4H_0^5$ that indicates hypothesis testing for each variable in the equation; i.e. firm size, fixed asset, firm age, profitability, and firm growth rate. If the hypothesis is rejected the state is represented by "0 " and "1", otherwise. For instance, the representation of "10101" indicates that the equality of coefficient belonging to firm size β_1 is not rejected, the equality of coefficient belonging to fixed assets β_2 is rejected, the equality of coefficient belonging to firm age β_3 is not rejected, the equality of coefficient belonging to profitability β_4 is rejected, and the equality of coefficient belonging to firm growth β_5 can is not rejected, at 10% significance level. Then the table tabulates the number of pairs that satisfy the conditions specified in each column. Table reports the results per each region excluding Hokkaido where there is only one prefecture which is itself. The results sum up for regions as with-in and the remaining as with-out and for all pairs. Once the pairs come from the same region and satisfy the condition, that counts in that specific region.

Table 8: F-test for the Equality of Coefficients of Firm-specific Variables Across Prefecture Pairs for Long-Term Debt

State of Test Result	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 00000	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 10000	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 01000	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 00100	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 00010	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 00001	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 11000	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 10100	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 10010	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 10001	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 01100	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 01010	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 01001	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 00110	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 00101	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 00011
Thoku (15)	0	0	1	4	0	0	0	1	0	0	0	0	0	0	0	0
Kanto (21)	1	3	0	1	6	0	0	0	2	1	0	0	1	0	0	0
Chubu (36)	0	0	1	2	1	1	0	0	0	1	0	5	0	2	0	3
Kansai (21)	0	0	0	0	1	1	0	0	0	1	0	2	2	1	0	0
Chugoku (15)	1	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0
Shikoku (6)	0	0	1	0	0	2	0	0	0	1	0	1	0	0	0	0
Kyushu (28)	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
Within-region (142)	2	5	3	8	9	4	0	1	3	4	0	8	3	3	0	5
Outside-region (939)	28	11	14	57	64	31	9	22	26	15	12	33	25	22	26	35
All (1081)	30	16	17	65	73	35	9	23	29	19	12	41	28	25	26	40

State of Test Result	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 11100	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 10110	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 10101	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 10011	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 11010	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 11001	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 01110	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 01101	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 01011	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 00111	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 11110	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 10111	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 11011	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 11101	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 01111	$H_0^1H_0^2H_0^3H_0^4H_0^5$ 11111
Thoku (15)	0	0	0	0	0	2	0	1	2	0	1	0	1	1	0	1
Kanto (21)	0	1	0	0	1	0	0	2	0	0	0	0	0	2	0	0
Chubu (36)	0	2	2	0	0	0	0	1	0	3	0	3	2	1	2	4
Kansai (21)	0	3	0	1	0	0	0	0	1	0	1	3	1	0	0	3
Chugoku (15)	0	0	1	1	0	1	0	0	0	1	0	0	0	1	0	0
Shikoku (6)	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	2
Kyushu (28)	1	1	1	2	2	1	1	0	1	2	2	1	2	3	2	3
Within-region (142)	1	7	4	4	3	4	1	5	4	6	4	7	6	10	4	13
Outside-region (939)	8	24	28	24	24	24	24	31	48	33	26	21	44	36	51	64
All (1081)	9	31	32	28	27	28	25	36	52	39	30	28	50	46	55	77

Note: Table tabulates F-test results of coefficient equality across prefecture pairs for the equation of short-term debt. Tests are the null hypotheses that each of the firm-specific variables is the same between the pairs. In our sample, 47 Japanese prefectures constitute 1081 pairs from all possible combinations of prefectures of which 142 pairs come from the same region, i.e. $\binom{47}{2}$. We test equality of all coefficients for a pair as $H_0^n : \beta_n^x = \beta_n^y$ where β_n is the coefficient of firm-specific variables represented by the vector X in the equation $Leverage_{i,j} = \alpha_{i,j} + \beta X_i + \varepsilon_i$ that is estimated to determine financing decision of firms, and x and y represent two prefectures that are not identical. We specify combination of states by $H_0^1H_0^2H_0^3H_0^4H_0^5$ that indicates hypothesis testing for each variable in the equation; i.e. firm size, fixed asset, firm age, profitability, and firm growth rate. If the hypothesis is rejected the state is represented by "0 " and "1", otherwise. For instance, the representation of "10101" indicates that the equality of coefficient belonging to firm size β_1 is not rejected, the equality of coefficient belonging to fixed assets β_2 is rejected, the equality of coefficient belonging to firm age β_3 is not rejected, the equality of coefficient belonging to profitability β_4 is rejected, and the equality of coefficient belonging to firm growth β_5 can is not rejected, at 10% significance level. Then the table tabulates the number of pairs that satisfy the conditions specified in each column. Table reports the results per each region excluding Hokkaido where there is only one prefecture which is itself. The results sum up for regions as with-in and the remaining as with-out and for all pairs. Once the pairs come from the same region and satisfy the condition, that counts in that specific region.

Table 9: F-test for the Equality of Coefficients of Firm-specific Variables Across Prefecture Pairs for Short-Term Debt

Appendices

A Miscellaneous Tables

Appendix section provides descriptive statistics for each prefecture. Tables A3, A4, and A5 report the results for the hypothesis testing of the equality of coefficients of each variable within regions. Regions are Thoku, Kanto, Chubu, Kansai, Chugoku, Shigoku, Kyushu. Hokkaido is not present because the prefecture in this region is itself. Tables also provide the test results for all the regions of the country.

Region	Prefecture	Variables	$Leverage$	$Size$	$FixedAsset$	Age	$Profit$	$Growth$
Hokkaido	Hokkaido	Mean	0.656	13.4	0.392	42.991	0.018	0.120
		Standard Deviation	0.531	1.617	0.220	15.898	0.103	8.678
Thoku	Aomori	Mean	2.462	13.11	0.428	41.567	0.013	0.021
		Standard Deviation	86.396	1.464	0.212	15.598	0.145	0.216
	Iwate	Mean	0.696	13.226	0.417	40.86	0.024	0.040
		Standard Deviation	0.881	1.649	0.221	16.087	0.128	0.230
	Miyagi	Mean	0.724	13.383	0.403	39.025	0.028	0.306
		Standard Deviation	0.494	1.706	0.232	16.893	0.109	15.832
	Akita	Mean	0.685	13.314	0.415	41.98	0.013	0.019
		Standard Deviation	0.380	1.473	0.218	16.532	0.101	0.212
	Yamagata	Mean	0.690	13.477	0.450	42.752	0.017	0.271
		Standard Deviation	0.426	1.539	0.207	16.58	0.078	13.166
	Fukushima	Mean	0.735	13.274	0.414	40.131	0.024	0.748
		Standard Deviation	0.431	1.539	0.210	15.395	0.123	27.520
Kanto	Ibaraki	Mean	0.677	14.139	0.404	43.082	0.021	1.822
		Standard Deviation	0.475	1.675	0.208	15.746	0.155	42.754
	Tochigi	Mean	0.733	13.686	0.426	40.723	0.023	0.513
		Standard Deviation	0.564	1.573	0.215	16.963	0.080	20.146
	Gunma	Mean	0.690	13.926	0.437	47.379	0.020	1.715
		Standard Deviation	0.434	1.739	0.202	16.312	0.063	40.899
	Saitama	Mean	0.707	14.117	0.438	44.602	0.030	0.020
		Standard Deviation	1.248	1.822	0.224	18.351	0.076	0.215
	Chiba	Mean	0.655	13.961	0.424	40.089	0.031	0.357
		Standard Deviation	0.332	1.792	0.234	17.099	0.077	16.480
	Tokyo	Mean	0.645	14.274	0.368	48.845	0.034	2.076
		Standard Deviation	2.222	1.953	0.226	20.833	0.109	45.766
	Kanagawa	Mean	0.702	14.008	0.408	45.408	0.027	1.059
		Standard Deviation	1,797	1.827	0.228	18.888	0.100	33.339
Chubu	Niigata	Mean	0.675	13.574	0.427	41.824	0.024	0.200
		Standard Deviation	1,780	1.673	0.215	16.421	0.085	13.228
	Toyama	Mean	0.700	13.879	0.458	43.615	0.025	0.926
		Standard Deviation	3,869	1.715	0.201	18.211	0.077	30.118
	Ishikawa	Mean	0.671	13.886	0.421	44.403	0.023	0.450
		Standard Deviation	0.370	1.732	0.189	15.79	0.080	20.780
	Fukui	Mean	0.741	13.296	0.384	40.484	0.013	0.028
		Standard Deviation	0.749	1.949	0.206	16.327	0.136	0.375
	Yamanashi	Mean	0.695	13.603	0.429	44.894	0.021	0.026
		Standard Deviation	0.560	1.573	0.209	15.367	0.089	0.204
	Nagano	Mean	0.800	13.702	0.430	44.98	0.018	0.248
		Standard Deviation	10.447	1.664	0.212	15.469	0.075	15.371
	Gifu	Mean	0.649	14.183	0.438	46.706	0.022	0.011
		Standard Deviation	0.389	1.706	0.197	16.278	0.076	0.168
	Shizuoka	Mean	0.971	13.744	0.423	44.427	0.016	0.386
		Standard Deviation	15.520	1.85	0.221	18.609	0.120	17.616
	Aichi	Mean	0.646	14.18	0.416	46.328	0.025	0.352
		Standard Deviation	0.626	1.74	0.211	17.764	0.079	17.331

Note: Table presents mean and standard deviations of the variables across prefectures.

Table A1: Descriptive Statistics Across Prefectures

Region	Prefecture	Variables	*Leverage*	*Size*	*FixedAsset*	*Age*	*Profit*	*Growth*
Kansai	Mie	Mean	0.709	13.881	0.432	45.072	0.025	0.016
		Standard Deviation	0.695	1.816	0.222	18.745	0.086	0.178
	Shiga	Mean	0.638	14.2	0.418	43.75	0.022	0.012
		Standard Deviation	0.463	1.552	0.222	16.972	0.095	0.151
	Kyoto	Mean	0.670	14.119	0.430	48.315	0.027	0.664
		Standard Deviation	0.841	1.844	0.217	20.253	0.069	26.168
	Osaka	Mean	0.642	14.345	0.374	50.252	0.029	0.527
		Standard Deviation	0.396	1.803	0.212	19.79	0.082	22.017
	Hyogo	Mean	0.653	14.154	0.408	49.384	0.029	0.568
		Standard Deviation	0.598	1.893	0.211	20.493	0.071	20.445
	Nara	Mean	0.655	14.267	0.408	42.445	0.026	1.312
		Standard Deviation	0.367	1.469	0.204	16.077	0.099	38.078
	Wakayama	Mean	0.638	13.864	0.400	46.688	0.023	0.024
		Standard Deviation	0.324	1.486	0.215	14.015	0.063	0.183
Chugoku	Tottori	Mean	0.736	13.534	0.464	42.647	0.017	0.857
		Standard Deviation	0.408	1.482	0.218	17.487	0.076	28.315
	Shimane	Mean	0.666	13.401	0.422	42.696	0.014	0.018
		Standard Deviation	0.904	1.406	0.196	16.451	0.089	0.198
	Okayama	Mean	0.718	14.185	0.428	46.417	0.023	1.336
		Standard Deviation	0.958	1.671	0.214	18.78	0.069	37.081
	Hiroshima	Mean	0.765	13.794	0.415	43.797	0.008	0.294
		Standard Deviation	0.858	1.877	0.228	16.931	0.391	18.068
	Yamaguchi	Mean	0.688	13.827	0.373	48.507	0.020	0.024
		Standard Deviation	0.568	1.661	0.221	17.91	0.109	0.195
Shikoku	Tokushima	Mean	0.683	13.907	0.406	44.413	0.019	0.014
		Standard Deviation	0.291	1.525	0.213	15.375	0.052	0.169
	Kagawa	Mean	0.699	13.78	0.421	44.002	0.028	0.506
		Standard Deviation	0.881	1.723	0.211	16.452	0.081	20.925
	Ehime	Mean	0.758	13.441	0.467	41.534	0.014	0.018
		Standard Deviation	0.986	1.927	0.229	16.027	0.129	0.196
	Kochi	Mean	0.705	13.713	0.440	42.048	0.026	0.158
		Standard Deviation	0.552	1.805	0.219	18.671	0.094	3.578
Kyushu	Fukuoka	Mean	0.893	13.739	0.392	40.43	0.022	0.988
		Standard Deviation	6.894	1.918	0.229	18.061	0.131	31.345
	Saga	Mean	0.630	14.117	0.367	47.155	0.031	0.020
		Standard Deviation	0.341	1.572	0.189	18.651	0.086	0.165
	Nagasaki	Mean	0.705	13.616	0.427	43.038	0.025	0.025
		Standard Deviation	0.411	1.585	0.220	18.378	0.063	0.162
	Kumamoto	Mean	0.636	13.806	0.370	44.99	0.023	0.029
		Standard Deviation	0.246	1.638	0.228	16.021	0.063	0.206
	Oita	Mean	0.678	13.586	0.440	40.667	0.014	0.027
		Standard Deviation	0.334	1.683	0.232	16.32	0.176	0.316
	Miyazaki	Mean	0.646	13.696	0.392	41.956	0.021	0.026
		Standard Deviation	0.380	1.584	0.219	16.202	0.073	0.237
	Kagoshima	Mean	0.617	13.738	0.459	41.838	0.018	0.764
		Standard Deviation	0.268	1.731	0.244	17.785	0.081	27.239
	Okinawa	Mean	0.657	13.545	0.394	34.07	0.039	0.042
		Standard Deviation	0.299	1.643	0.268	13.85	0.082	0.258

Note: Table presents mean and standard deviations of the variables across prefectures.

Table A2: Descriptive Statistics across Prefectures-*cont'd*

	Size	*FixedAsset*	*Age*	*Profit*	*Growth*
Japan					
$Chi^2(46)$	559.48	591.51	332.59	332.59	2,469.52
Prob.	0.0000	0.0000	0.0000	0.0000	0.0000
Number of Prefectures	47	47	47	47	47
Result	Reject	Reject	Reject	Reject	Reject
Thoku					
$Chi^2(5)$	15.22	32.30	26.62	18.71	86.77
Prob.	0.0186	0.0000	0.0001	0.0022	0.0000
Number of Prefectures	6	6	6	6	6
Result	Reject	Reject	Reject	Reject	Reject
Kanto					
$Chi^2(6)$	45.08	18.78	16.85	7.69	36.45
Prob.	0.0000	0.0089	0.0098	0.2614	0.0000
Number of Prefectures	7	7	7	7	7
Result	Reject	Reject	Reject	Fail to reject	Reject
Chubu					
$Chi^2(8)$	121.27	35.04	31.49	16.23	266.17
Prob.	0.0000	0.0001	0.0001	0.0392	0.0000
Number of Prefectures	9	9	9	9	9
Result	Reject	Reject	Reject	Reject	Reject
Kansai					
$Chi^2(6)$	45.74	66.81	25.82	20.03	29.35
Prob.	0.0000	0.0000	0.0002	0.0027	0.0001
Number of Prefectures	7	7	7	7	7
Result	Reject	Reject	Reject	Reject	Reject
Chugoku					
$Chi^2(4)$	19.75	51.89	31.86	4,81	23.95
Prob.	0.0006	0.0000	0.0000	0.3072	0.0001
Number of Prefectures	5	5	5	5	5
Result	Reject	Reject	Reject	Fail to reject	Reject
Shigoku					
$Chi^2(3)$	41.34	6.63	30.78	11.41	1325.58
Prob.	0.0000	0.0845	0.0000	0.0097	0.0000
Number of Prefectures	4	4	4	4	4
Result	Reject	Reject	Reject	Reject	Reject
Kyushu					
$Chi^2(7)$	31.32	82.59	36.65	19.20	26.85
Prob.	0.0001	0.0000	0.0000	0.0076	0.0004
Number of Prefectures	8	8	8	8	8
Result	Reject	Reject	Reject	Reject	Reject

Note: Table presents the F-test results of the null hypotheses that each of the firm-specific variables is equal. Tests belong to the country and regions separately. Hokkaido did not appear as a region as the only prefecture in the region is itself.

Table A3: F-test for the Equality of Coefficients of Firm-specific Variables Within Regions for Total Debt

	$Size$	$FixedAsset$	Age	$Profit$	$Growth$
Japan					
$Chi^2(46)$	709.76	567.15	368.10	191.75	2,160.06
Prob	0.0000	0.0000	0.0000	0.0000	0.0000
Number of Prefectures	47	47	47	47	47
Result	Reject	Reject	Reject	Reject	Reject
Thoku					
$Chi^2(5)$	7.95	22.63	19.24	15.97	24.35
Prob.	0.1589	0.0004	0.0017	0.0069	0.0002
Number of Prefectures	6	6	6	6	6
Result	Fail to reject	Reject	Reject	Reject	Reject
Kanto					
$Chi^2(6)$	136.91	25.80	43.72	51.13	120.97
Prob.	0.0000	0.0002	0.0000	0.0000	0.0000
Number of Prefectures	7	7	7	7	7
Result	Reject	Reject	Reject	Reject	Reject
Chubu					
$Chi^2(8)$	120.94	48.46	19.14	19.56	790.96
Prob.	0.0000	0.0000	0.0142	0.0121	0.0000
Number of Prefectures	9	9	9	9	9
Result	Reject	Reject	Reject	Reject	Reject
Kansai					
$Chi^2(6)$	38.64	51.62	48.19	19.22	19.67
Prob.	0.0000	0.0000	0.0000	0.0038	0.0032
Number of Prefectures	7	7	7	7	7
Result	Reject	Reject	Reject	Reject	Reject
Chugoku					
$Chi^2(5)$	20.36	15.91	64.97	6.95	32.21
Prob.	0.0004	0.0031	0.0000	0.1385	0.0000
Number of Prefectures	5	5	5	5	5
Result	Reject	Reject	Reject	Fail to reject	Reject
Shigoku					
$Chi^2(3)$	30.64	32.50	72.06	5.66	899.95
Prob.	0.0000	0.0000	0.0000	0.1294	0.0000
Number of Prefectures	4	4	4	4	4
Result	Reject	Reject	Reject	Fail to reject	Reject
Kyushu					
$Chi^2(7)$	26.81	108.51	32.19	27.26	16.63
Prob.	0.0004	0.0000	0.0000	0.0003	0.0199
Number of Prefectures	8	8	8	8	8
Result	Reject	Reject	Reject	Reject	Reject

Note: Table presents the F-test results of the null hypotheses that each of the firm-specific variables is equal. Tests belong to the country and regions separately. Hokkaido did not appear as a region as the only prefecture in the region is itself.

Table A4: F-test for the Equality of Coefficients of Firm-specific Variables Within Regions for Long-Term Debt

	Size	*FixedAsset*	*Age*	*Profit*	*Growth*
Japan					
$Chi^2(46)$	395.77	298.3	295.56	207.59	1,443.50
Prob.	0.0000	0.0000	0.0000	0.0000	0.0000
Number of Prefectures	47	47	47	47	47
Result	Reject	Reject	Reject	Reject	Reject
Thoku					
$Chi^2(5)$	20.55	8.85	16.14	26.62	24.34
Prob.	0.0010	0.1151	0.0064	0.0001	0.0002
Number of Prefectures	6	6	6	6	6
Result	Reject	Fail to reject	Reject	Reject	Reject
Kanto					
$Chi^2(6)$	35.33	34.37	44.24	62.77	73.03
Prob.	0.0000	0.0000	0.0000	0.0000	0.0000
Number of Prefectures	7	7	7	7	7
Result	Reject	Reject	Reject	Reject	Reject
Chubu					
$Chi^2(8)$	65.30	63.49	44.36	13.58	618.06
Prob.	0.0000	0.0000	0.0000	0.0933	0.0000
Number of Prefectures	9	9	9	9	9
Result	Reject	Reject	Reject	Reject	Reject
Kansai					
$Chi^2(6)$	24.39	21.92	26.10	10.28	14.76
Prob.	0.0004	0.0013	0.0002	0.1133	0.0222
Number of Prefectures	7	7	7	7	7
Result	Reject	Reject	Reject	Fail to reject	Reject
Chugoku					
$Chi^2(5)$	82.98	63.93	14.76	34.12	30.43
Prob.	0.0000	0.0000	0.0052	0.0000	0.0000
Number of Prefectures	5	5	5	5	5
Result	Reject	Reject	Reject	Reject	Reject
Shigoku					
$Chi^2(3)$	31.00	9.00	35.24	10.73	85.36
Prob.	0.0000	0.0292	0.0000	0.0133	0.0000
Number of Prefectures	4	4	4	4	4
Result	Reject	Reject	Reject	Reject	Reject
Kyushu					
$Chi^2(7)$	11.87	18.24	53.77	17.47	13.36
Prob.	0.1049	0.0109	0.0000	0.0146	0.0639
Number of Prefectures	8	8	8	8	8
Result	Fail to reject	Reject	Reject	Reject	Reject

Note: Table presents the F-test results of the null hypotheses that each of the firm-specific variables is equal. Tests belong to the country and regions separately. Hokkaido did not appear as a region as the only prefecture in the region is itself.

Table A5: F-test for the Equality of Coefficients of Firm-specific Variables Within Regions for Short-Term Debt

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